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Our London correspondent states that the Elmore process for concentrating ores in a medium of petroleum is to be given thorough trial. The Elmores have entered into contracts with the Boston Consolidated, Mr. Samuel Newhouse's company, and with the Cape Copper and Namaqua Company, both of which have large dumps of low-grade copper ores that will not concentrate.

One of the greatest sources of loss in coal mining is through the practice of leaving heavy pillars of coal to protect the workings and failing to get out a proper proportion of the coal so left. On the other hand, coal is often lost through leaving too small pillars, which are crushed by subsequent creeps. Mr. Gresley's article in another column is a concise but exhaustive statement on the working of ribs and pillars.

Mining operations in the Lake Superior iron regions, though curtailed just now by the present state of the iron market, show some notable developments this year. The greatest of these developments are on the Vermilion and Mesabi ranges. On the Vermilion range the Carnegie Company has made a great mine out of a property that was allowed to go begging for years, and on the Mesabi at least two mines are likely to touch the 1,000,000 ton mark on shipments. On the older ranges a lot of small mines producing low-grade ore have closed, but the big mines having good ore will make an output better than the average.

It is to be hoped for the good of all concerned that the threatened strike in the anthracite coal-fields may be averted. Last week we called attention to the conditions which have controlled the growth of the anthracite industry, and showed that some of the largest mining companies have mined at a loss year after year. We also showed how radically different were conditions in the anthracite and bituminous fields. That the companies will not submit to the imposition of mining scales, based on bituminous mining, without a long struggle, is certain. The misery and suffering of a long drawn out strike are likewise certain. That the final lot of the anthracite miner would be any better if the scales demanded were adopted is, to say the least, doubtful.

We are informed that another process has been devised for treating those metallurgical puzzles, the Sudbury copper-nickel ores. The new process is the invention of Mr. H. A. Frasch of New York, and great things are expected of it. The ores are reduced to matte in the usual way, but the copper, nickel, platinum, etc., are removed from this matte by electrolysis in a chloridizing solution. It is stated that chlorine and bleaching powder can be had as by-products. The laboratory tests made are said to be very satisfactory, but what can be done on a commercial scale remains to be seen. However, the process is to have a public demonstration in a few days, and we hope to give a full description of it together with some comments.

The announcement that a large glass manufacturing concern is to remove its plants from the Indiana gas belt to Pittsburg calls attention again to the passing of a wonderful fuel. Ten years ago the boom in gas lands in Indiana and Ohio was at its height. The promoter of town site schemes was offering inexhaustible supplies of fuel, free of cost to any manufacturing concern that would listen to him. Millions of feet of gas were running to waste as blazing torches, used simply for advertising. Though men like the late Edward M. Orton protested against this shocking waste, they were met by the calm assurance of the ignorant speculator, and the public was informed that the gas was made in Nature's laboratory as fast as used. It is said that we Americans love to do things in a hurry. We certainly showed haste in our zeal to squander a cheap and for some some purposes singularly efficient fuel that might have lasted for years to come.

The promoter of fake companies has trouble at present to overcome the apathy of the public and the general dullness in mining stocks. The credulous dupes who listened to him in 1898 and 1899 too often are now in possession of nicely engraved certificates for which they can find no market value. There are local exceptions to the market dullness; big deals at Cripple Creek draw attention to that district, while the Leadville Basin is the seat of activity for a number of promising new companies, but, as a whole, mining stocks are selling rather slowly. In British Columbia and in Eastern Washington, the reorganization of boom companies and the steady development of meritorious properties do not make a lively market. In Arizona several of the concerns upon which we had occasion to comment unfavorably are reported in a bad way, and two at least have shut down definitely. In the Missouri zinc field, companies which were to pay dividends of one per cent. a month or so, are finding the attempt too much for them and dividends are indefinitely postponed. The truth is that the public has had speculation enough for awhile, and it will probably be some months before mining stocks are active again.

GOLD PRODUCTION IN AUSTRALASIA IN 1900.

Gold production in Australasia for the first half of the current year has shown some variations, on which comment should be of interest. The output of the several colonies for the six months ending June 30th is shown in the table below, which has been compiled by the "Australian Mining Standard." The production is in crude ounces:

	1899.	1900.	Changes.
New South Wales	185,084	156,356	D. 28,728
New Zealand	186,111	172,204	D. 13,907
Queensland	451,461	503,181	I. 51,720
Tasmania	39,566	25,429	D. 14,137
Victoria	398,293	370,552	D. 27,741
Western Australia	709,797	758,303	I. 48,506
Total, ounces crude	1,970,312	1,986,025	I. 15,713
Total, ounces fine gold	1,694,468	1,707,982	I. 13,514
Total, value	$35,024,654	$35,303,988	I. 279,334

It will be seen that while all the colonies showed increases last year only two—Queensland and Western Australia—have gained during the current year. In the former the increase was a substantial one—11.2 per cent.—and was due to the mines entirely, the placer or alluvial workings taking a very small part in the output. The Mount Morgan and other leading mines have been actively exploited; in several cases additions have been made to milling plants, and the gold mining industry appears to be in a prosperous condition. In Western Australia the increase this year has been moderate—6.8 per cent.—and nearly all of it was made in January and February, the later months showing either no gain or an actual decrease from last year. This result has been due to the falling off in the big mines at Kalgoorlie; and whether it will be made up in the second half of the year depends largely on the result of the work now in progress in the treatment of the sulphide ores. To this question reference has been made frequently in our columns.

In New South Wales the decrease this year has been 15.5 per cent., and there seems to be no satisfactory explanation of this large apparent falling off; unless, as was suggested in "The Mineral Industry," Volume VIII., there was some confusion in the returns for 1899, by which this colony was credited with gold produced from ores from Western Australia. Indeed the returns from this colony have often been difficult to understand, the figures varying greatly from month to month. The large increase in production shown in 1899 over 1898 was not the result of any special variation in mining activity, and there have been no changes this year to account for the decrease.

Victoria shows a decrease of 6.8 per cent. this year, which has been fairly uniform, each month's returns being below or nearly equal to those of 1899. There is no special reason for this beyond a general relaxation of the high pressure work of last year. The attempt to introduce gold dredges in certain parts of this colony have met with much opposition, for reasons not easy to understand. The success of such operations may be problematical, but failure would injure only the operators themselves, and the protests made against the use of dredges seem to have been based upon a false idea of the probable results.

In New Zealand the small decrease shown will probably be made up in the second half of the year, as mining in the Otago District has been prosperous, and the dredging industry has been both active and successful. The latter, indeed, threatens to be overdone, as there is at present a boom of some dimensions in that branch of the industry, and many new companies are being organized. Thus in May no less than twenty new companies were organized to work dredges, and the number is rapidly increasing. In Tasmania the gold production is always variable and is not important. The decrease this year has been largely in the gold won as a by-product in connection with copper and other metals. No returns are given in the table for South Australia, but the output of that colony is too small to affect the general result to any extent.

Upon the whole, Australasia has done well in maintaining its large gold production during the first half of the year. The result, however, indicates that 1900 will show but little gain over 1899, and that it is quite possible that the Transvaal being out of the way—the United States may this year take once more the leading place as a gold producer.

AMERICAN MINING ENGINEERS.

It is somewhat surprising to find two such papers as the "London Mining Journal," of August 4th, and the "Financial News" same date, allowing themselves, evidently without investigation, to circulate a vulgar anonymous denunciation of American mining engineers in general, written in a style as execrable as the statements made. The writer of this scurrilous attack signs himself "Anti-Shoddy," and denounces all American mining engineers, especially those who have been in the Transvaal and in Australia, as "incompetent and inexperienced," and also, in so many words, as dishonest, and urges the employment, in their place, of Colonial Englishmen, as more experienced and competent, and, we suppose, more honest. He also denounces mining engineers generally as general managers of mining and metallurgical enterprises and recommends chemists as the proper managers of mines and works.

While "Anti-Shoddy" uses a nom de plume, presumably to conceal his identity, he might have used his own name, which we believe is Walter J. Studds, without attracting attention, for so far as we can learn he has never done anything that would make him known outside of a very small circle. Mr. Studds is a Colonial chemist who was discharged for cause by the American manager of an Australian mine at which he was employed. Even without this simple and ample explanation of his evident animus his statements would be quite unworthy of attention. He is totally ignorant of South African mines and conditions, or of the practice there except what he has learned of it by reading reports of some years ago, when the cost of work was nearly double what it was in 1899, before the war.

The world has never before seen such a marvelous development of mineral resources and the mining and metallurgical engineering of the Rand forms certainly one of the most brilliant pages in the history of the industry. To denounce the engineers who did such work as "incompetent and inexperienced" carries only the conviction that the man who makes it is densely ignorant of the facts, or is maliciously untruthful. The mining and metallurgical work of South Africa was chiefly created by such American engineers as Hammond, Seymour, Clement, Butters, Gardner Williams, Leggett, Searle, Blow, Webb, L. and H. H.; Jennings, S. J. and H.; Curtis, Drake, Yeatman, Yates and many others whose good work has given them an honorable position in the profession.

The success of the principal mines in Australia has been largely due to the great mining and metallurgical skill of such American mining and metallurgical engineers as Patten, Schlapp, Sticht, Hoover, Skewes, Adams, Beardsley, Collins, Foster, P. L.; Howell, J.; Weinberg, Koehler; Wilson, H.; Thomas, F. F.; Irwin, W. A.; Callahan and many others.

That failures have also been made is well known, but they have frequently been due not to the engineers, but to the promoters in London, who, in order to boom and unload the stock, oblige the manager to force the output beyond what he knows to be wise; as in the case of the Lake View Consols. Another case was a mill ordered for South African hard rock and suitable for that which was sent to Australia, to Brown's Creek, against the protest of the managers, where it had to stamp mud and made a failure.

The fact that capitalists persist in paying American mining engineers and metallurgists about twice as large salaries as they pay the engineers of other countries would seem to most men to be a convincing proof of their experience and professional ability, but doubtless to Mr. Studds it is only a grievance hard to be borne and which may have had something to do with the inspiration of his silly and venemous attack.

Every man of common sense knows that there are incompetents in every country and in every profession. There are good and there are bad American mining engineers and some of the latter have gone to Africa and Australia. Enough indeed to induce us to protest against being charged with Mr. Konemann, a chemist, who is not an American, though he made a failure here, which was duly reported in "The Engineering and Mining Journal," that warned English capitalists what they might expect if they sent him out to Australia to introduce his plans there.

The wisdom and skill in the profession are not monopolized by the engineers of any one country. There are excellent men in all. The American characteristics of resourcefulness and adaptability which our mining conditions have inculcated render American engineers usually more efficient and valuable, especially in new countries and under novel conditions, than are those of any other nationality. Many of the young Colonials are also developing this aptitude, which it is extremely difficult for continental European engineers to acquire. American engineers work in perfect harmony with those of other nationalities in South Africa, and it is fortunately extremely rare that any such exhibition of narrow-minded jealousy or malevolence as this of "Anti-Shoddy" finds expression, especially in papers of the standing of the London "Mining Journal" and the "Financial News." It would seem to us that an apology is due from these papers for allowing such a misuse of their columns.

NEW PUBLICATIONS.

Recherche, Captage et Aménagement des Sources Thermo-Minerales. L. De Lannay. Paris: Baudry & Co., 1899; pp., 642, illustrated. Price, 60 fr.

This volume is based on a course of lectures given by the author at the School of Mines at Paris and is a worthy supplement to the comprehensive treatise on ore deposits published some years ago. The subject of thermal springs is so related to the problems one encounters in formulating any comprehensive statements regarding the formations of veins and the deposition of minerals from solution that this work is of interest to all students of geology. Considering the number of per-

sons who are interested in or make a living from mineral springs, the literature on the subject is surprisingly scanty. There has been a lot written about the therapeutical value of certain springs, but surprisingly little about thermal springs in general, the laws governing their flow and the best method of capturing the heated waters as they flow from their underground channels and of utilizing them afterward. The object of this work is to show how it is often possible to increase the mineral content of thermal springs, their temperature, and hence their therapeutic value, by comparatively little work. The book has two principal parts; the first part treats of the origin of the thermal springs, the causes governing their flow, their physical and chemical properties, their distribution, etc., putting in concise and orderly form a great many facts that have hitherto not been correlated; this part of the work is of interest to all students of ore deposits. The second part of the book is purely technical, the author giving explicit directions concerning the different ways of capturing thermal waters. The author discusses the course of surface waters into the earth and their subsequent rise to the surface. He shows how the origin of any thermal spring is related to the geology of the district; how the water in groups of springs have a close relationship with recent mountain chains, and discusses the principal thermal baths of the world.

The author, in the second part, shows how to develop a thermal spring, how to get the water and carry it to the point where it is to be used; how to keep its temperature high, its mineralization strong; how to prevent its gas from escaping and how to utilize its properties as the needs of a thermal establishment render useful or necessary.

BOOKS RECEIVED.

In sending books for notices, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"Jahrbuch der Chemie, 1899." Compiled by Richard Meyer. Braunschweig, Germany; Friedrich Vieweg und Sohn. Pages, 513.

"Prehistoric Implements." By Warren K. Moorehead. Cincinnati, O.; The Robert Clarke Co. Pages, 431; illustrated. Price, $3.

"U. S. Commission of Fish and Fisheries. Part XXV. Report of the Commissioner for the year ending June 30th, 1899." Washington, D. C.; Government Printing Office. Pages, 397; illustrated.

NEW DEVELOPMENTS IN THE MANUFACTURE OF SULPHURIC ACID.

Written for the Engineering and Mining Journal by H. A. Frasch.

The problem of displacing the chamber process in the manufacture of sulphuric acid by less cumbersome and more direct methods has been for some time one of the foremost subjects of chemical research, and the results obtained in the manufacture of sulphuric anhydride within the last few years promise in the near future to bring about a complete revolution in the sulphuric acid industry. In Germany already several works are operating the anhydride process by means of the catalytic action of platinum, and numerous patents have been issued more or less pertaining to the composition or application of the contact substance with platinum for the active agent. The tendency is to increase conversion and reduce the amount of platinum in the process. In this direction the Schroeder-Grillo process appears the most promising; it is claimed that by this method 1 kg. of platinum is sufficient for a daily production of 10 tons of sulphuric anhydride. The advocates of the platinum process state that if the sulphurous gases are properly dried and purified the process can be conducted for a period of years without the necessity of regenerating the contact mass; so that the actual cost of production of sulphuric anhydride is apparently reduced to a minimum. Yet there remain two requirements in this process representing investment, amortization and labor, the necessity of which should be overcome. The purification of the gases, which has to be accomplished completely, requires additional apparatus, and the delivery or compression not only calls for expensive machinery but constitutes expense in manipulation and amortization. In all the methods employed at present to manufacture sulphuric anhydride by the platinum process the gases are kept more or less under pressure. Adding to this the value of the platinum in the process, which at the best is quite considerable, it would seem that the platinum process is not yet the most economical.

Other contact substances have been suggested, of which ferric oxide appears the most promising. Among others the "Verein Chemischer Fabriken" in Mannheim has lately obtained patents for the production of sulphuric anhydride by the application of a contact substance containing ferric oxide (German patent No. 107,995), and it is claimed that by this method complete conversion of the sulphurous acid to sulphuric anhydrite is obtained. The gist of this patent consists in the utilization for contact substance of the pyrite cinders direct from the burners and while yet hot and in reactive condition, as also in the application of previously dried air for the roasting process. No mention is made regarding the regulation of the reactive heat and it would seem that without it such a process cannot be entirely successful. True, the quantity of contact substance present is much larger than is the case where platinum is used, and the energy of the catalytic action is correspondingly less; yet, considering that two-thirds of the heat is developed by the oxidation of sulphur to sulphur dioxide and only one-third is evolved by the final oxidation, the temperatures must eventually assume a degree of dissociation of the anhydrite if the process is conducted as stated in the patent "in immediate connection with the roasting process." That some difficulty has been encountered in this direction is indicated by a modification of the original process which employs "diluted" gases to obtain better results. Such a remedy may prove more detrimental than advantageous; in fact there should be no need for such extreme measures.

The process can be conducted in such a manner that complete control of temperatures and contact substance can be obtained by combining a contact furnace, as shown in the annexed sketch, with ordinary pyrites burners. The contact furnace is constructed for down-draft and may be supplied with a magazine for self-feeding, so that the amount of cinder drawn from the bottom of the shaft regulates the charge of fresh ore and hence the temperature. The heat evolved by the complete oxidation of sulphur to SO_3 being + 96.4 cal.; of which + 71.6 cal. are developed by the formation of SO_2, that is in the roasting furnace, and 24.8 cal. are evolved by the final oxidation to SO_3 in the contact furnace, the SO_2 gases coming from the burners represent an increase of + 24.8 cal., the sulphur charged in the contact furnace + 96.4 cal. By cooling the gases coming from the roasting furnace before they enter the contact furnace the temperature of the contact mass can be reduced and maintained at a desired degree by adjusting the proportions of sulphur burning and SO_2 gases admitted in the contact furnace.

This method does not require purification of the gases, nor compression, and while, of course, the draft has to be enforced by mechanical means this can be accomplished with far less expensive apparatus and at smaller cost than the compression. At the same time the contact substance is obtained free of cost. The results so far reported from the use of ferric oxide as a contact substance appear encouraging, and suggest eventually the abandonment of both the chamber and the platinum process in the manufacture of sulphuric acid.

CALCIUM CARBIDE IN INDIA.—Application has been made to the Perak Government for a concession in the marble district of Kinta, for the manufacture of carbide of calcium. The carriage of carbide of calcium by railway in packages of 150 pounds each has been permitted by the Government of India.

VANADIUM ORE DEPOSIT.—A deposit of vanadium ore is said to have been located near Placerville, Colorado, in the condition of an impregnation of sandstone, resembling the mineral Roscoelite, which latter is considered now a vanadium mica of the type of muscovite. Roscoelite is described in Roscoe & Schorlemmer's work on "Chemistry," and an analysis of some ore found in California is given in a paper by Dr. W. F. Hillebrand in the "American Journal of Science," Volume VII., June, 1899. It was found to be composed of oxides of vanadium, silicon, aluminum and potassium.

LOCOMOTIVE EXPORTS OF GREAT BRITAIN.—This year promises to be a tolerably good one as regards locomotive exports. In the 7 months ending July 31st, this year, these exports aggregate £849,531, as compared with £787,428 in the corresponding period of 1899, and £718,407 in 1898. The locomotives exported to India in the first seven months of this year declined to £284,341, as compared with £388,230 in the corresponding period of 1899; in 1898 they only amounted to £194,803. A compensation has been found for the decline in the deliveries to British India by an advance in the value of the engines shipped in the first seven months to South America to £146,653, as compared with £119,855 and £100,034, respectively, while the value of the shipments to British South Africa to July 31st this year also increased to £65,851, as compared with £29,469, and £15,972, respectively. The Australasian value also advanced to £96,158, as compared with £54,364, although the total for the first seven months of 1898 stood at £169,512.

COLOMBO AS A COALING STATION.—Operations in China will greatly add to the importance of Colombo as a coaling station. The records of past years show that with naval vessels Colombo is becoming more and more a favorite port of call. In 1895 only 12,545 tons of coal were taken for naval requirements, while in 1899 the total tonnage was 31,754. The general development of the coal trade at this port during the past five years has been very great. In 1895 the quantity imported was 326,297 tons, all of which was reshipped with the exception of a small quantity for local consumption. In 1899 the quantity imported was 511,692 tons, and the first six months of 1900 showed a still further increase in proportion. In the first six months of the current year about 58 per cent. of the coal consumed, or rather imported at Colombo, came from the United Kingdom, 36 per cent. from British India, and 6 per cent. from Japan.

MINING POTASSIUM SALTS IN GERMANY.

Written for the Engineering and Mining Journal by E. Mackay-Heriot.

The mining of potassium salts is an industry about which one hears little outside of Germany. On account of its growing commercial importance, a short description of this modern branch of the mining world may be interesting. The potassium salts which are found in nature in the form of carnallit, kainit, sylvinit, etc., have up to the present time been found in payable quantities only in Germany, where developments go to prove that the deposits will be able to provide cheap manure to the world for hundreds of years to come.

The birthplace of the potassium mine is Stassfurt, a town situated to the northeast of the Harz Mountains, where at an early date salt was worked. Here it was that the Prussian State, in the year 1839, put down a bore hole for rock salt, but instead of rock salt a solution of chloride of magnesium and chloride of potassium was obtained.

This fact greatly annoyed the State. However, it was decided to sink two shafts and open up the salt layer, and in the year 1852 these shafts were really begun. In five years rock salt was reached at a depth of 300 meters, after passing through a deposit of potassium salts between 256 and 280 meters depth. These latter salts were tested by aid of a level, and it was ultimately agreed to brick up the shaft from them; but thanks to the energy of a man named Frank, a chemist in a neighboring sugar manufactory, this was not done. Frank pointed out that these potassium salts were invaluable as an artificial manure.

The Government of Anhalt soon followed the Prussian State in successfully sinking two shafts not far from those of the latter, which in the year 1862 began to produce potassium salts.

After the two governments had had the potassium trade in their

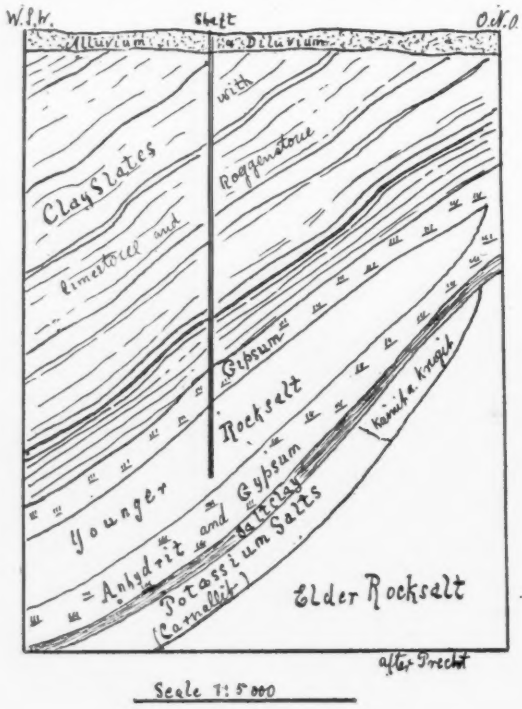
hands for a period of about 15 years the Prussian monopoly was abolished in the year 1868, and this gave birth to many new companies. In latter years much speculation has resulted from the success of the pioneer mines, for in Hanover and neighboring provinces about 180 deep-boring companies have been formed, many of which have since failed.

In order to give a general idea of the German salt mines from a geological point of view, the celebrated deposits of Stassfurt may here be first taken as an example:

The salt formation, which is of Upper Permian age, builds up the hanging wall of the lower Trias, and therefore of the Mesozoic period. The lower Trias consists chiefly of clay slates, with their layers of limestone and roggenstone. The uppermost strata of the Upper Permian are the anhydrite and gypsum, following which are layers of salt-clay, potassium salts and rock salt. Sometimes (as in the section) a deposit of rock salt is found above the anhydrite and gypsum, and this goes by the name of the younger rock salt, the rock salt underlying the potassium salts being called the elder rock salt.

If we study the section here given of one of the Stassfurt mines, we notice that the potassium salts underlie a so-called salt-clay layer. There is more importance in this fact than is at first noticed. To begin with, we have to thank the waterproof structure of the salt-clay for the preservation of the very soluble potassium salts; and again, in sinking shafts this layer is of great importance in shutting out the water from the shaft and from the mine. This section is shown in Fig. 1.

Before leaving the geology of the Upper German Permian a glance at



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GERMAN SALT DEPOSITS.

the deposits around Hanover must be taken, for these differ somewhat from those of Stassfurt, and on this account a section is given, Fig. 2. Here we notice that the elder rock salt is absent, and that the potassium salts are found right in the middle of the rock salt deposit, and not only one layer of potassium salts, but two or three. Up to date the not only one layer of potassium salts, but two or three. A peculiarity of the Hanover deposits is that the potassium salts seem to occur in lenticular form.

The writer classifies deposits of the Stassfurt type as primeval, and those of the Hanover type as secondary, and both belong to the Upper German Permian formation.

The following is a list of the salts which occur, together with the potassium salts, which the writer has taken from Dr. Precht's little treatise entitled the "Salt Industry of Stassfurt and Neighborhood":

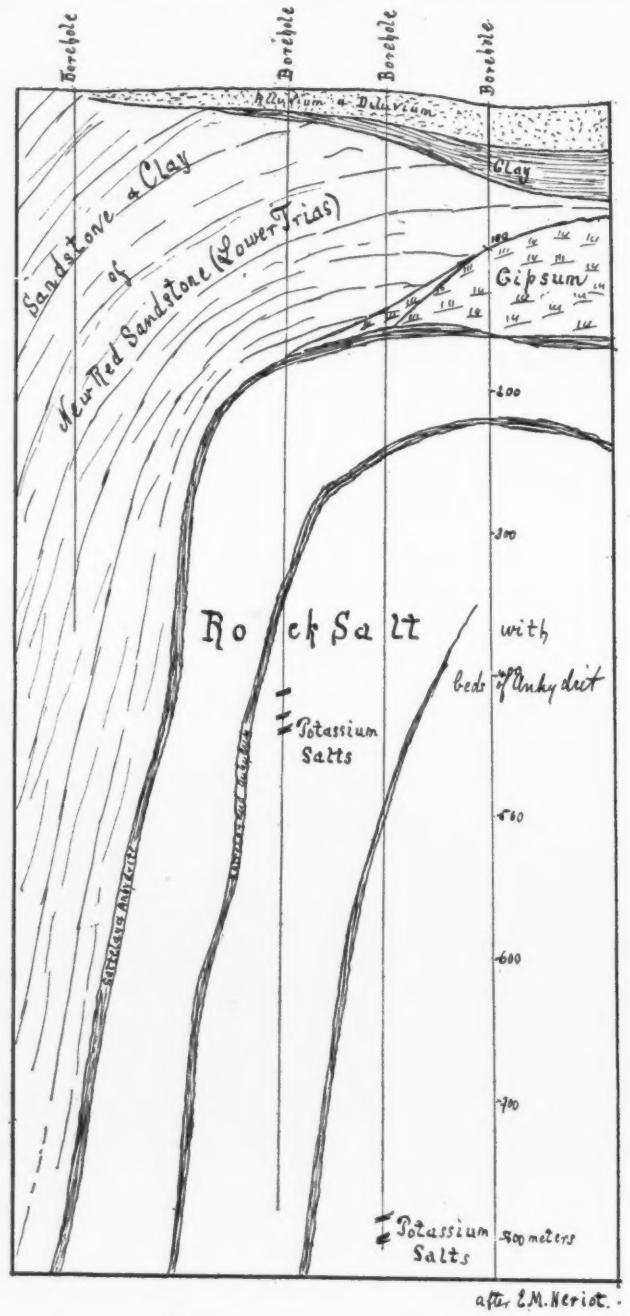
1. Primeval minerals.—Rock salt, NaCl; anhydrite, $CaSO_4$; polahalit, $2\,CaSO_4$; $MgSO_4$, K_2SO_4, H_2O; kieserit, $MgSO_4\,H_2O$; carnallit, $K\,Cl\,Mg\,Cl_2\,6\,H_2O$; boracit, $2\,(Mg_3\,B_8O_{15}) + MgCl_2$; and in very small quantities douglasit, $2\,KCl\,Fe\,Cl_2\,2H_2O$.

II. Secondary minerals.—Kainit, K_2SO_4, $Mg\,SO_4Mg\,Cl^2$, $6\,H_2O$; sylvinit, KCl; schoenit, K_2SO_4, $Mg\,SO_4$, $6\,H_2O$; langbeinit, $K_2SO_4\,2\,Mg\,SO_4$; reichardit, $Mg\,SO_4$, $F\,H_2O$; varasit, $K_2\,SO_4\,Fe_2\,S_3O_{12}\,2\,(Fe_2\,(OH)\,6)$; krugit, K_2SO_4, $Mg\,SO_4$, $4\,CaSO_4$, $2\,H_2O$; glauberit, $CaSO_4$, Na_2SO_4; astrakanit, Na_2SO_4, $Mg\,SO_4$, $4\,H_2O$; glaserit, K_2SO_4; bischofit, $Mg\,Cl_2$, $6\,H_2O$; tachhydrit, $Ca\,Cl_2$, $2\,Mg\,Cl_2$, $12\,H_2O$; pinnoit, $Mg\,B_2O_4$, $3\,H_2O$; ascharit $3\,(Mg_2B_2O_5)\,2\,H_2O$; heintzit, $H_2K\,Mg_2$, $B_{12}O_{20}$, $6\,H_2O$; kaliborit $2\,(K_2B_8O_{13})$, $9\,(Mg\,B_2Of)$, $39\,H_2O$; magnesit, $Mg\,CO_3$; pyrites, FeS_2, and sulphur.

Of these two groups of minerals, the following are commercially important: I. Rock salt, carnallit (boracit). II. Kainit, sylvinit.

The annual report for the year 1899 of the Selling Syndicate of the German potassium salt mines gives the following output: Chloride of potassium, 167,432 tons, 80 per cent.; sulphate of potash, 24,655 tons, 90 per cent.; calcined sulphate of potassium magnesia, 8,459 tons, 48 per cent.; crystallized sulphate of potassium magnesia, 578 tons, 40 per cent; potassium manure salts, 67,481 tons; calcined kieserite, 259 tons; kieserite in blocks, 28,216 tons; kainit and sylvinit, 1,032,506 tons; carnallit and Berg kieserite, 63,287 tons. The increase in the output of chloride of potassium was 7,900 tons of 80 per cent.

In calcined sulphate of potassium-magnesia the United States of America was the chief buyer, the amounts being 5,702 tons in 1899,



Seale 1: 5000

GERMAN SALT DEPOSITS.

against 8,945 in 1898. This decrease was owing to the hard frost which prevailed in Florida in January and February.

The prices of the potassium manure salts were low at the beginning of the year, but they have since sold above all expectations.

JAPANESE COAL EXPORTS.—In 1899 the exports of coal, including the quantities for ships' use, amounted to 2,487,614 tons, valued at 15,164,866 yen ($7,580,000), as against 2,186,790 tons, valued at 15,168,798 yen ($7,585,000) in 1899. Of the amount shipped in 1899, the largest quantities were consigned to China, while only 14,418 tons were sent to the United States, which is but little more than 1898.

COAL PRODUCTION IN GERMANY.—The deliveries of coal from the three principal producing districts—the Ruhr, the Saar and Silesia—have showed less activity, the total movement for July having been 2,905,230 metric tons as compared with 2,978,620 tons in 1899, a decrease of 78,390 tons, or 2.56 per cent. The output of the Ruhr District in the second quarter of this year amounted to 14,147,893 metric tons, as compared with 13,232,357 tons in the second quarter of 1899. The receipts of coal at Ruhrort in the first half of this year were 2,208,518 tons, as compared with 2,093,366 tons in the corresponding period of 1899. The deliveries of coal from Ruhrort in the first half of this year were 2,273,674 tons, as compared with 2,157,106 tons in the corresponding period of 1899.

THE YELLOW ASTER MINE, CALIFORNIA.

The Yellow Aster Mine is the largest and best-known of the group of mines in the Randsburg District in the desert section of Southern California. This district is comparatively a new one, its exploitation dating back only a few years. The district is in Kern County, about 45 miles northwest of Mohave Station on the Southern Pacific and 25 miles north of Kramer, on the Atlantic & Pacific. A description of this district in its earlier days—written by the late F. M. Endlich, one of the first mining engineers who examined it—was published in the "Engineering and Mining Journal" February 27th, 1897. Since that time there have been, of course, many changes, but much that was then said about the district still applies.

The Yellow Aster and the adjoining claims now owned by the Yellow Aster Mining Company were located in 1895 by John Singleton, F. M. Mooers and C. A. Burcham, who are still the chief owners. The property is much more developed and better provided with machinery than any other in the district; and we understand that this work has been paid for by the mine itself. The principal claims owned by the company are the Rand, the Yellow Aster, the Trilby and the Olympus, all of which really form one mine; and in addition there are several outlying claims.

The property has from the first been carefully and systematically developed, the object being to bring out its full capacity and put it in condition to be a steady producer. There are a number of shafts, the two principal ones being the Hercules and the Vertical, the latter being so placed as to connect with every part of the mine. Owing to the nature of the country, much work has been done by tunnels. The main tunnel, which strikes the principal vein on the 750-ft. level below the upper workings, is utilized to haul ore from the mine. The ore mined is now all delivered to the mill by cars, at an average cost of 4c. a ton for trammage.

Owing to the location of the district fuel is very costly, and the managers of the Yellow Aster early recognized the advantages of the gas or oil engine. Several engines of this type are in use, and recently the company added the largest oil engine ever built in California to its plant. This engine is placed at a point 350 ft. in from the mouth of the main tunnel, at the head of an inclined double-compartment shaft. It has sufficient capacity to work down to 2,000 ft. if required. It was built by the Union Gas Engine Company of San Francisco; is of the four-cylinder vertical type, and can work up to 130 H. P. The hoisting drum is double. It is arranged to start the big engine with a small auxiliary engine, the latter being used also for running the blower for ventilating the mine. Both engines run on distillate, which is about one-half the cost of gasoline when delivered at the mine; but they can be run on naphtha, benzine or any grade of gasoline. The levers are all brought to one platform, enabling the engineer to have full control over both hoist and engine, as in modern steam practice.

At first the ore from this mine was hauled 12 miles to Garlock, and later shipped to Barstow. At that time only the high grade ore could be shipped, owing to the cost of transportation. As the mine was developed the company decided to build its own mill, and one of 30 stamps was erected, being completed in February, 1899. Since that time the ore has not been graded, but has all been passed through the mill and the 30 stamps are now running steadily, with an average output of $50,000 in gold per month. At the same time the mine has been a steady dividend payer, having distributed up to July, 1900, a total of $419,416, on the capital stock of $1,000,000. These payments have been made in addition to the large amount which has been spent on the mine and mill.

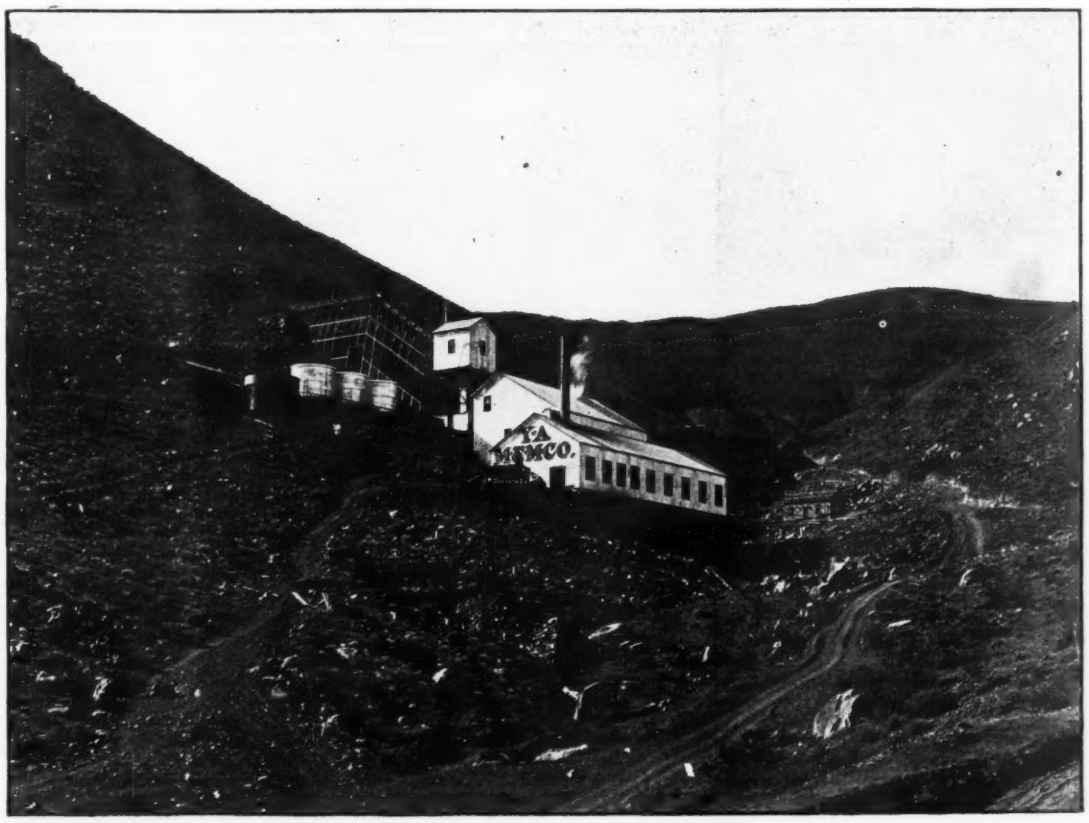
The accompanying photograph of the exterior of the mill illustrates the desolate nature of the surrounding country. The view of the interior shows the arrangement of stamps and concentrators. The mill is so built that it can readily be enlarged to 100 stamps, and it is probable that the addition will be made before long.

The ores of the district, to a depth of 200 to 300 ft., are decomposed and entirely free milling. At greater depth pyrite will probably be the chief gold bearer. Besides the main vein or ore body in the Yellow Aster the tunnels have cut many small veins, some of them exceedingly rich. As mentioned above, the company has conducted its development work with the main object of providing a steady supply of average ore for the mill, rather than breaking or selecting high grade ore. There is no doubt that this has been the true policy, and there is now in sight a very large quantity of ore which will pay to work.

Water is a very important consideration in this district, and the supply of this necessity has received much careful consideration. After trying several sources the company has finally secured a supply, the total cost of the property, pumping works, pipe line, etc., being about $60,000. The supply now available is sufficient for 100 stamps.

The company has passed through the vicissitudes usual in new camps, including the inevitable litigation. The title is now firmly established, and the property is still in the hands of the original locators. They deserve much credit for their perseverance and their good judgment in the management and development of the mines.

The present directors of the company are C. A. Burcham, R. L. Burcham, F. M. Mooers, John M. Miller and John Singleton. The officers are: John Singleton, president and manager; C. A. Burcham, vice-president; Dr. R. L. Burcham, secretary. We are indebted to Mr. Singleton for the accompanying photographs and for the facts given above.



YELLOW ASTER MILL, RANDSBURG, CALIFORNIA.

A SULPHURIC ACID METHOD FOR COPPER.—J. W. Chanhall and G. H. Bulmer (Proceedings of the Institution of Civil Engineering, Volume 134), have experimented on extracting the copper oxy-chloride ores of Chile by means of sulphuric acid. The average copper contents was 6.2 per cent., and the ore contained 0.873 per cent. of chlorine. The gangue is silicious, however, and contained 3.25 per cent. of oxide of iron which, however, is harder than the copper mineral, so that after crushing it is found that the copper concentrates in the fines. These assay from 10 to 13.5 per cent. copper. On treating this material with frequent agitation the whole of the copper was found dissolved in 40 minutes. With the harder and coarser portions of the ore it was also found that all copper practically dissolved, but two or three days' time was necessary to complete the treatment. All of the oxide of iron present was found to dissolve and to increase in the solution as the time of contact was prolonged and also if the strength of the acid was increased beyond 5 per cent. The process, however, was found too expensive for the district in which it was proposed to use it, as the expense of recrystallizing sulphate of copper several times would be abnormally high.

THE GOLD-FIELDS OF WESTERN ONTARIO.

Written for the Engineering and Mining Journal by J. D. Lowry.

The gold-fields of Western Ontario extend from the Province of Manitoba on the west to Lake Superior on the east, and from the International Boundary line on the south to a line 130 miles north; they cover an area of over 30,000 square miles, and comprise what are known as the Rainy River and Thunder Bay mining districts, the former occupying the western half, and the latter the eastern half of the region.

The Rainy River District comprises three sub-districts, as follows: 1. The Lake of the Woods District, on the Manitoba boundary line, and extending over the shores and islands of the Lake of the Woods from English River on the north to Rainy River on the south. 2. The Rainy Lake & Seine River District, extending from Rainy Lake along the Seine River to Lac des Mille Lacs and south to the International Boundary line. 3. The Manitou-Wabigoon district, extending from Rainy Lake and Seine River along the Manitou River and chain of lakes to Lac Seul north of the Canadian Pacific Railway.

It is in the last-named districts that the greatest activity in mining has been carried on, but the whole region is still practically a virgin field for the prospector, the miner and the capitalist. The ore is practically all free milling, from 80 to 90 per cent. of the gold being saved by amalgamation, while from 10 to 20 per cent. of it is found associated with sulphur or with iron pyrites. The cost of treating the latter compounds is comparatively small, however. The quartz occurs in lenticular and also in true fissure veins, the former being bedded in walls of green chloritic and hornblendic schist, and the latter in walls of eruptive granite or gneiss.

The first discovery of gold in the region was made in the year 1881 at what is now the Sultana Mine, in the Lake of the Woods District. An effort was soon afterward made to float a company in London to develop the find, and an expert was sent up to report. After a two weeks' examination, however, he condemned the property and advised the owners to dispose of it as soon as possible, saying that it consisted only of "a mass of lenticular deposits of segregated quartz having no depth or continuity." Geological experts also condemned the property, and, in fact, the whole region, declaring the ore to be highly refractory and incapable of reduction on a profitable commercial basis. Discredit generally was thus thrown upon the region and did much to retard its mineral development.

Notwithstanding these unfavorable reports and condemnations, Mr. J. F. Caldwell, one of the leading men of Winnipeg, Manitoba, and present owner and operator of the Sultana Mine, purchased the property and immediately started development work. After considerable surface work and prospecting, operations were commenced in earnest in the summer of 1892, and a 10-stamp mill was built and completed during the fall of that year. A cyanide plant, for treating the concentrates, was also erected at a cost of several thousand dollars, but it was not successful, and a chlorination plant was installed in the summer of 1896, and it proved to be just what was required for treating the refractory portion of the ore of this mine.

The Sultana is now the principal mine in the Lake of the Woods District and it is well equipped. With 30 stamps and the chlorination plant running night and day, it is netting its owner a large profit.

Among the other mines in this district are the Mikado, on Shoal Lake, running 20 stamps, the Regina, on Whitefish Bay, with 35 stamps, the Golden Gate, the Triumph, the Cornucopia, the Scramble and others of smaller capacity. The Mikado was discovered in 1896, and the ore at this mine is rich, a mill test of 140 tons having returned a value of $19,000. Another strike was also made at this mine in the early part of 1899.

The principal mines in the Rainy Lake & Seine River District are the Foley (20 stamps), the Olive (25 stamps), the Alice A. (50 stamps), the Golden Star (10 stamps), on the lower Seine River, the Saw Bill (10 stamps), and the Hammond Reef (40 stamps), on the upper Seine River. The Hammond Reef is a peculiar discovery. The reef is of quartziferous rock, and it has a length of about 3 miles and a width of nearly 500 ft. The ore averages about $17 per ton in free gold, besides concentrates, while the cost of working and treating the same is estimated to be only $1.50 per ton.

The Manitou-Wabigoon District, while much younger than its sister districts is also being developed.

The advantages of the region may be enumerated as follows: 1. As has been stated, the ore is practically all free milling, and from actual tests the gold has averaged about $15 to the ton, while the cost of working and treating has only averaged about $4 or less per ton.

2. Abundance of water for power and other purposes. The whole region is a network of lakes, rivers, and streams, which afford not only excellent means of communication for boats and canoes, etc., in the summer, but also in the winter, when frozen over, for sledges, etc., and it is by this latter method that supplies are taken into the camps to a great extent. Exceptional advantages are also afforded the prospector, as almost every part of the region can be reached by canoe. Power resources are almost unlimited. At Keewatin, 3 miles from Rat Portage, where the waters of the Lake of the Woods fall into the Winnipeg River, the Keewatin Power Company is installing what will be, when completed, one of the greatest water power plants in the world. By the erection of an immense dam at this point they have converted the Lake of the Woods into a reservoir 3,000 square miles in extent.

3. Abundance of timber for both building and fuel purposes. As fuel, it can be laid down at the mines at a cost not exceeding $1.50 per cord, while for building purposes it is also relatively cheap.

At present, the only means of access to the mining camps is by means of boat and canoe in summer, and in winter by the frozen lakes, etc., and roads chopped through the bush from the nearest point on the Canadian Pacific Railway. The latter runs through the northern portion of the region from east to west, and is the only line in the region, although the construction of another line to tap it along its southern boundary is now under way.

The principal towns in the region are Rat Portage, in the Lake of the Woods District, Fort Frances and Mine Center in the Rainy Lake & Seine River District, and Wabigoon in the Manitou-Wabigoon District.

Rat Portage, situated on the Canadian Pacific Railway, 134 miles east of Winnipeg, Man., and lying at the northern extremity of the Lake of the Woods, is the largest town in the region, and it has a population of over 5,000. Near Rat Portage are Norman, a lumbering town, and Keewatin, with large flour and saw mills. The reduction works of the Ottawa Gold Mining and Milling Company are also located at this point.

Fort Frances, on Rainy River, and Mine Center, on the Seine River, are both flourishing mining centers. Fort Frances is about 215 miles distant from Rat Portage by steamer. Wabigoon, on the Canadian Pacific Railway, 95 miles east of Rat Portage, is the business center of the Manitou-Wabigoon District.

The climate of the region is on the whole very good, although very cold during the winter. It is a dry, bracing cold, however. The extremely cold weather—from 50° to 60° below zero—is not of very frequent occurrence, and does not last for long stretches at a time. Winter sets in in November and lasts until about June. Mining operations are carried on the year round. As a field for labor, the region ranks very well, wages being good and board and living expenses being comparatively cheap.

The mining laws are quite liberal. Any person may explore Crown lands for minerals, and mining lands may be purchased outright or leased at rates fixed by the Mines Act. Mining lands are sold as "mining locations," the minimum area of one of the latter being 40 acres, and the maximum 320 acres for an individual, or 640 acres for a company, and not more than one location can be obtained within a radius of 15 miles in any one year.

Prices range from $2 to $3.50 per acre, the highest price being paid for lands in surveyed territory within 6 miles of a railroad. The rental charge is at the rate of $1 per acre for the first year, and from 15 to 30c. per acre for subsequent years. The leasehold may be converted into freehold any time at the option of the tenant, and when this is done the first year's rent is included as a part of the purchase money.

After seven years a royalty of not more than 2 per cent. is payable to the Crown, based on the value of the ore extracted, less the cost of extraction and treatment for the market.

While the whole region is principally a gold producer, good iron ores have been found in both the Rainy River and Thunder Bay districts, and in the latter silver, copper and lead have also been found.

COAL RATES IN ENGLAND.—The various railway interests serving the districts affected have now notified the trade that on and after July 9th the charge for hire of railway companies' wagons used for the conveyance of iron ore and ironstone for blast furnaces for mines in Northamptonshire, Notts, Leicestershire, Lincolnshire, Rutland, Derbyshire, Warwickshire and Yorkshire, to furnaces in Derbyshire, Yorkshire, Warwickshire, Staffordshire, Worcestershire, Notts, Shropshire, Northamptonshire, Leicestershire and Lincolnshire will be increased as follows: Where the charge has hitherto been 3d. per ton to be 4d. per ton, 4d. to be 5d. per ton, 6d. to be 8d. per ton.

LONG COAL TRAINS IN ENGLAND.—The London "Engineer" says: "Recently the first of the new powerful Lancashire & Yorkshire engines was despatched by the Goole agent from the docks to the Goole Branch collieries at Acton, Featherstone and Glass Houghton, with 100 empty wagons—a longer train of vehicles, we understand, than has ever previously been hauled by a single engine in the United Kingdom. Later in the day the engine returned with 60 wagons fully laden with coal, the aggregate weight being considerably over 1,000 tons. Previously the average number of laden wagons per engine has been 27. The time occupied by the journey also compared very satisfactorily with the experience of the old engines with lighter loads.

COAL AND IRON COMPANIES IN RUSSIA.—A commission appointed by the Russian Government to enquire into, and if possible remedy, the existing condition of coal and iron companies, has recommended the following measures: 1. To entrust large orders of coal for Government requirements, extending over several years, to various colliery companies, and to immediately advance the amount of 1½ to 2 copeks per pood, on account of the price of 7½ copeks per pood for the exclusive purpose of enabling the companies to start new pits, while the Government will have the advantage of ensuring its coal supplies at a moderate price; 2, for protecting the rolling mills, rails are to be purchased at 1.25 roubles per pood; and 3, for assisting the wagon works, the price of 1.15 roubles is to be allowed per wagon.

THE HOEPFNER ELECTROLYTIC PROCESS.—A plant to work the Hoepfner wet process for the extraction of copper was erected at Papenburg, Germany. It has a capacity, it is stated, of a metric ton of refined copper daily. The ore is first crushed in Grusonwerke ball mills and leached with cupric chloride solutions. The solution dissolves copper, lead, nickel and silver, the cupric salt being reduced to the cuprous state. After purification and being freed from silver, the solution is allowed to flow to a compartment with carbon anodes and copper cathodes. Chlorine is liberated at the anodes regenerating the cupric solution, which is returned to a fresh charge of ore. It is claimed that 91 per cent. of the contained copper was obtained after four hours' treatment of Rio Tinto ore containing 3.37 per cent. copper and only 3 per cent. of the iron content dissolved. By longer contact 98.5 per cent. of the copper was extracted with only 4 per cent. of the iron taken up. It is claimed, moreover, that 1 H. P. in 24 hours will produce 54 kgs. of copper as against 15 kgs. by the sulphate process.

SOME PRACTICAL REMARKS ON RIBS AND RIB-DRAWING.

Written for the Engineering and Mining Journal by W. S. Gresley.

Having had occasion to prepare a catalogue of reasons why the operation of the removal of or drawing pillars and ribs of coal was so often—shall I say, is usually—unsatisfactory or, stated in another way, what are the advantages to be gained by working pillars and ribs quickly and systematically; it occurred to me that if by bringing this list to the notice of practical men some might profit by it, even in the smallest degree, the joint efforts of author and publisher would not be altogether profitless; for every mining man knows that pillar-working is invariably attended with drawbacks and is more or less unsatisfactory in results, and would rejoice to see the day when a method shall be used in which either there shall be no pillars or ribs, or the removal of them can be accomplished without the present objectionable features of my list or others not included.

By way of preface, will say that the subjoined causes of uneconomical rib and pillar drawing are noted from actual observation during several years' experience, and they refer for the most part to seams of and workings in ordinary bituminous coal under what, in this country, may be called normal conditions, and where no particular objection exists to taking all the coal out, and to plans which provide for rooms being worked wider than the ribs. Of course it is only by knowing and appreciating the bad features of a system or want of system, that improvements tending to minimize or do away with those features can be sought, planned, tested, approved and adopted. Knowing the disease or trouble we may apply the known cure; seek to prevent the trouble and no cure is wanted.

Generally speaking, ribs and pillars may be said to have to bear the brunt of unsystematic work, especially when such work follows or is applied to a poor plan or to an objectionable method of developing a mine. As often as not ribs are planned and made but just wide enough to carry the cover, hill or weight, while the rooms are being worked to their limits; and so, in attempting to take out the ribs a squeeze ensues and but little of the coal in them ever sees daylight. Therefore, in order to extract ribs properly and satisfactorily, they must be wide enough or of sufficient strength to stand up solid, or practically solid, during the process of drawing. Under stronger roofs narrower ribs will suffice and will come out as cleanly as wider ones beneath weaker roofs; provided, of course, other things are equal, for the reason that the strong roof distributes the weight more evenly over the pillars.

To avoid being possibly misunderstood, let me say, that wherever room and pillar systems are practical, a certain amount of coal must always remain in the mine, as pillars, etc., as long as the mine is a mine; but as such pillars must deteriorate with age, the fewer of them we can do with the better and the less they are cut up by chutes, breakthroughs, etc., the more marketable coal there in them; and so, one of the most important factors to be used in preparing the scheme or plan for opening and working a coal mine is here indicated.

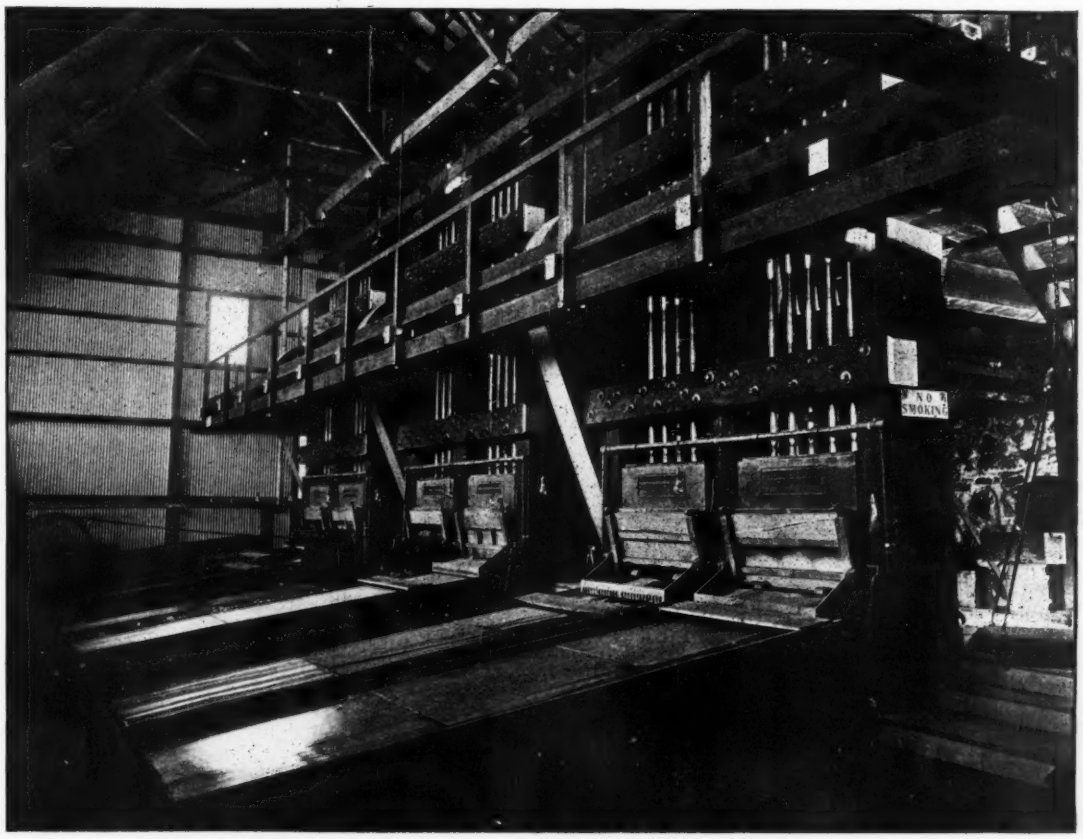
Undesirable Features Attending Taking Out Ribs and Pillars.

1. Nobody disputes that the quality of the coal in a rib, stump or pillar does not improve by keeping; the longer it stands there the more it loses its heating power, its gas-producing qualities, its coke-yielding ability, and so on. The softer the seam the quicker and greater its deterioration in value for market. "Softness" in a coal implies that the seam is naturally intersected or ramified by innumerable cracks or fine joints which act as inlets for all the deteriorative agents having access to the coal bed.

2. Everybody allows, too, that if, say two cars or cargoes of coal, although approximately equal in fuel value, the one having the bright and fresh appearance will sell itself, while that of the dull, discolored, 10-year old aspect, will be difficult to dispose of. It is needless to say from what kind of a working place in a mine the latter came.

3. Other things being equal, the coal that is mined from a rib or a pillar which is most free from cracks, or least ready to fall to pieces at a blow or through ordinary handling and transportation, will sell best. Ribs and pillars suffering from too much pressure or weight produce less valuable coal because full of cracks, crushed and liable to fall to slack. All practical miners know, to their cost, how the yield of lump coal falls as squeeze increases over their places in the pit. Likewise, all salesmen are aware of the fact that the larger the grade of the coal the better the price.

4. The slower a pillar or rib is worked the longer the time imposed upon the posts or props to hold up the roof in the adjacent room or other mined-out place. This tardiness induces decay in the timbers, invites weight, brings on falls of top between the posts over the roadways or elsewhere, knocks posts out, bends and breaks others, and unless the expense of retimbering be incurred, the place is as likely as not to close or become so blockaded by falls, etc., as to lead to its abondonment, and that means the loss of the rib or the pillar, or most of it, as the case may be.



INTERIOR OF YELLOW ASTER MILL, RANDSBURG, CALIFORNIA.

5. Where places are intended to be timbered once only, slow rib-drawing will necessitate posts of better quality and form, and, therefore, more expensive posts, than would be necessary to use if the ribs were pulled quickly and at once, after the completion of the rooms.

6. The practice of "skipping" a rib in order to get a roadway past a fall in a room will, unless the rib be of ample width, be very liable to seriously weaken the rib and lead to the creation of a local squeeze; said squeeze resulting in waste of coal. As likely as not the place where skipping is resorted to to save a little cleaning up and timbering is naturally a weak one, and so the trouble spreads.

7. Squeezes or places "on the weight," as in paragraph 6 above, often mean great expense to operate in the matter of posts, and dead work needed to reopen the roadway and afterward to maintain the same as long as the places are being worked.

8. Since the "local squeeze" (see No. 6) may happen to occur where—notwithstanding the coal and the roof are sound—other ribs are less stout, because not made wide enough or possibly reduced in width by skipping, trouble ones begun may extend to result in very serious consequences.

9. The sides of ribs that have stood idle for some time often spall off and crumble away and the floors may creep or heave. To put such places in proper shape to resume and carry on working often runs into money, and especially so where the mine is wet or damp.

10. If there be one condition better calculated to hasten the wear-out or destruction of mine track more than another it is idleness, coupled with water and old-workings atmosphere.

11. The floor of the mine, especially where it is very damp or under water, and is a clay one, gets heavier (stickier) and muddier with time.

12. As to ventilation of old and slow-going ribs and pillars: with increase in numbers, area occupied, etc., falls and creeps will tend to weaken the air current; and as the current grows less in volume so do the nasty smells and objectionable things accumulating or forming or decomposing in such places augment and vitiate the so-called ventilating current.

13. How often one hears the report or discovers that "the weight has taken the face," in ribs or pillars. The direct cause is often attributable to the superincumbent pressure of the cover smashing the timbers and throwing the roof in, because the face was not worked faster—kept well ahead of the falls back in the gob or waste, or because the rib was too narrow and gave the top a better chance to fall.

14. When water appears upon the floor deep enough to be a nuisance to the miner, and is not drained or pumped out, the rib drawer will often leave a bench of good coal on bottom so he may work dryshod. This leaving of under-water coal is a drawback to the miner, because the seam being thus reduced in height, less of it can be mined with the same labor; or the miner, in order to fill the usual number of cars, must work harder or longer to do it. In such cases the question with the operator, or rather the superintendent or mine foreman, is, which is the cheapest thing to do, to drain the rib or to lose the coal?

15. The scarcity of skilled miners is, of course, not in favor of getting rib and pillar work done as it ought to be.

16. Neglect or inability to put more men to work on ribs or pillars so that same shall be rushed. There are times when even the life of a mine may be at stake unless certain pillars are removed very rapidly.

17. The working of rooms wider than the plan allows of necessity leaves the ribs narrower than the plan calls for; and being narrower there is far too much risk run of crush overtaking them when being drawn. This is an evil that has grown from bad to worse with the introduction of mining machines, for skilled pick miners have become less concerned with rib work in consequence.

18. Where coal-cutting machines are used and the ribs are drawn with picks, owing to the difference in the mining prices for pick coal and machine coal, it is customary for the pick miner to get one car to load for two allowed the loader of machine coal. The nature of the work is often such that it happens that the ribmen do not have as many cars to fill as they are able and willing to; and so the places that should move along the fastest often go slowest, or soon have to stop.

19. Valuable pillars and rib-coal, too, adjacent to boundary lines or separating the workings of rival operations, have been destroyed by squeezes brought on by the mining of one or other party over the boundary; the weight having been transferred from one side of the line to the other, due to one or more causes operating to throw it over upon the pillars, which falls in the gobs would likely have prevented.

20. Instances are known where, pending a settlement of the question of a pillar or no pillar or the size and shape of a pillar, to be left for the support of a building on surface, rib-drawing has been stopped, but owing to poor mining, squeeze and gradual subsidence has crept over the *locus in quo* to an extent threatening damage to the property by this time agreed to be supported or left intact.

21. Serious loss of coal in ribs and pillars is liable to occur when a mine or a district of a mine has to be shut down for a considerable time, wherein it happens that rib-pulling is going on in one or more places where the conditions may be called critical.

22. The presence of clay-veins, soot-veins, horsebacks, or other faults, also crooked boundaries, etc., may produce a series of ribs having very irregular lengths as well as variable widths. Unless drawn with skill and judgment much coal may easily be lost.

23. Decidedly dirty coal and coal running high in its percentage of slack results from badly crushed ribs and pillars when the seam carries in it or over it bands or interstratified layers of shale or of clay; these, softened by exposure to the air may become even softer than the coal, and then to separate the rubbish from the coal in the mine becomes impossible, and but little else than lumps are sent out, all slack and nut coal being gobbed.

24. If to work coal in pillars beneath a "green" roof is safer than below an older roof; then the faster the pillar or rib is pulled the better.

25. When miners are "on turn" (are allowed a pro rata supply of cars to load per day) and payment is made for screened lump only, of course the cars containing the largest proportion of nut and slack makes the miners who fill them the least wages; and since the run-of-mine out of squeezed and dilapidated pillars and ribs runs higher in slack, such places are the worst in the mine, paying both digger and owner the least.

26. Since concentration of working places and of miners in them counts for economy in material and maintenance, the opposite—scattered working and widely distributed men—mean lost motion and defective supervision. Therefore, rib-work should be carried on upon the former lines.

27. Explosive gas is soonest and most often in evidence in roof cavities in the removal of ribs and pillars, when these move slow rather than fast.

28. With moistened floors of long standing, heave or creep may be very troublesome in clearing up rooms, etc., in order to mine the pillars. The cost of taking up bottom may even exceed the value of the coal in the pillar.

29. When the top and bottom are both hard and the coal seam is soft, the latter in the pillars will yield to the pressure from above and be reduced to little else but slack if left long enough in place.

30. Is it not an injustice to the miner, when only paid for clean coal delivered outside, that he should be called on to clean up falls of rubbish, lay track, post, etc., in a place, before the rib or pillar at which he is going to work can be reached by mule and car, free of cost to the company, which might and ought to have had the thing worked out long before, when no cleaning-up, etc., were needed?

31. In these days of coal-cutting machines, whose main object is to reduce the mining cost, and since, as yet no machine has appeared that will take out the ribs in ordinary room and pillar mines, so that pick-work in ribs must follow machines in the rooms; and since the mining rate paid on pick coal is higher than for machine-cut coal, there has gradually developed a very decided and perhaps serious tendency among superintendents and mine bosses to favor machine work and to minimize work on the ribs. This policy soon leads to a heavy loss of ribs and pillars of all kinds and may bring on squeezes, creeps and thrusts some day to be deplored.

32. When the coal is prone to heat and take fire spontaneously, the slovenly working away of pillars is very apt to increase the trouble in this connection.

33. Since a pillar whose longest side lies parallel with the faces or cleat lines of the coal, other things being equal, is weaker than another pillar having these faces traversing it transversely, the latter pillar should produce the best and the most coal.

34. Weight makes itself felt more in working to the dip than uphill; so that ribs coming out on a dipping face will suffer more from weight.

35. When undercut with a machine the kerf or slot is often made in an inferior layer or bench of bottom coal, which bench in pick mining is usually left for the floor. Now, since the strength of ribs and pillars is in proportion to their thickness or height, unless made wider when machines are used in the rooms, they will be weaker than under the old pick system.

36. As heavier shooting (blasting) follows or accompanies machine undercutting than is needed in pick work, there is more injury done to the coal in the ribs due to concussion and jarring than obtains in pick mining: in other words, the same-sized rib will yield more lump coal if the rooms are mined by picks and not by machines.

37. In some cases ribs yield better when well banked up or buried by dirt on one side, but to offset that advantage the rib-worker will leave a thin shell of coal next to this dirt to keep it from running through into his place and spoiling his coal and to save shoveling it into his gob. The point is, which is the lesser of the two objections?

38. By the pick system the digger who worked a room usually took out his rib, too; thus he had as much interest in working his room up in proper shape as in bringing back his rib—he mined the former so as not to spoil or injure the latter. But now that the machine is so much in evidence, the tendency is to get the rooms too wide and so to spoil the rib. So there is not much encouragement left for the skilled pick-worker in machine sections.

39. In many places if the rooms were worked shorter, there will be less wastage in ribs. This is a matter of planning the method right to begin with.

40. The grading of an entry, where the ribs are still in, may put the latter is so awkward a position to reach and take out that they are never taken out.

41. One is fully justified in working a rib or a pillar, even at a loss, when the saving of more money elsewhere is the express object.

This catalogue may be a complete one, but the probabilities are that it is not. Among all these faulty features (some much more cogent than others), there is hardly one that does not tell against the miner as well as the owner, which is the same thing as saying that wherever the owner can lessen or prevent them he improves his property and condition as also the well-being of his employee; the latter seeks money, health, safety; the other, coal to market. Since there is unquestionably a tendency at the present time to mine the coal so that the ribs and pillars shall be only just wide enough to make them strong enough to carry the top without crushing or with a minimum allowance of crush until the places are finished and the roads abandoned; what may be called the factor of safety or the breaking strain of the pillars and the ribs is so closely worked up to that there is little or no reserve support for use should collapse threaten or unprepared-for squeeze put in an appearance where least wanted, or in case pillars require to be cut through or reduced in size and yet carry the weight.

Now, if it is true that the exigencies of the case compel men to minimize to the fullest extent coal-getting with picks because the pick-mining price is higher than machine rates, and thus allow ribs and pillars to be left standing or at the risk of being squeezed, while new entries are pushed ahead and room work is developed to the widest extent (hoping some day or other, we will presume, to return to the extraction of the ribs, for what they may then be worth), the loss of merchantable coal in these pillars and ribs is, in probably nine cases in ten, going to be deplorable; most of them will never be won; they will become crushed by weight and reduced to slack, buried by falls, and in many cases drowned into the bargain. Of course what is wanted now, in order to save the pillar coal, is a method or methods of mining by which the coal can be developed and taken out so that the pillars can be cut with machines. To accomplish this, I am firmly of opinion that the ideal method will be evolved on the lines of narrow rooms and wide pillars; by which I mean that there will be much more pillar than room, and slicing away the pillars with machines, and these machines will be of the longwall type—not the chain or breast machine so largely used now. It is not claimed that all the coal can ever be mined with machines, nor that waste in working will ever be done away with, but it is claimed that existing or customary methods will before long give place to such as will put a stop to the enormous waste now being permitted so that the breast machines may be employed to their fullest extent or capacity.

Probably many coal operators do not really know how much less they are saving than they suppose (if they are saving at all) by neglecting to take out all the coal—by not employing as many pick miners as are necessary to keep the rib-drawing close up with the room work and the machines; or to so proportion the widths of rooms and of ribs that undue wastage of coal shall be prevented. To get at the facts and remembering that the circumstances of each mine are somewhat different, the main factors in the calculation for comparison are as follows: How much did the coal cost when it was bought? How long since was it purchased? What is its value to-day, considering interest, taxes, etc.? What was the cost of your shaft or other opening, including plant, improvements, machines, etc.? How much per acre or per ton are you now paying for developing or opening up territory inside, right along; including, of course, such items as grading, drains, ventilating, timbering, clearing falls and all other deadwork, yardages and extras? How much

faster has the field to be driven into and put in shape to work rooms now you use machines than when pick-work was in vogue?

Supposing that one-third of the coal was being left in ribs and pillars, is it not true that in order to develop the mine for a steady future machine-coal output, the deadwork, the tunnels, entries and so forth, must advance 50 per cent. faster than when it was all pick mining and the ribs came out? and if the narrowwork must be driven faster—more of it in a given time, under a machine regime, so will the plant and the improvements last for a correspondingly shorter time, for the simple reason that the mine's life is shortened by leaving coal in the ground; a charge, therefore, against the machines should on this account be made. After figuring out such things as these and as fairly and squarely as possible and without prejudice, then see if the total per-ton cost of producing the coal in the mine on a practically all-machine basis and letting the ribs go is or is not more than if you mined all out, using machines to their fullest extent, but not letting them interfere in any way with drawing the ribs and pillars in the most approved way with the pick. I am of course aware that in some mines small parts of some of the ribs can be and are cut with the existing mining machines when the conditions are favorable; but still this does not make an economical showing as regards yield per acre. It is a practice somewhat risky and not unattended with danger. Owners should be reminded of the fact that while their pay rolls and bills may show a very satisfactory (?lowest) cost per ton for mining coal with machines, such papers or data never state the estimated tonnage or acreage of lost ribs and pillar coal for like periods. These losses can only be ascertained and kept track of by the engineering department, and where a plan of the mines, showing all coal lost, is not kept, it ought to be.

To lessen the troubles enumerated in the above list, it is obvious that certain points must be attended to. The plan or method by which the coal is going to be developed and worked must be determined at the outset and strictly adhered to until circumstances require a modification or a change. No question then but that wherever possible, and on general principles, rooms should be worked on the retreating plan, and the ribs, stumps and pillars all brought up together closely following the completion of the rooms. It is needless to say that doing this minimizes weight, caves, squeezes, falls; makes the best coal, secures the highest yield, ensures a regular supply of coal, provides for rushes or spurts in trade, minimizes cost of production. But whether the retreating plan or the advancing be adopted or both (say one on one side the pit, the other on the other side), great care and good judgment must be exercised in order to have the widths of the rooms and the ribs the best and the most economical, all things considered; never forgetting this, that places in solid coal invariably get too wide rather than not wide enough, are crooked rather than straight, and that ribs are formed too narrow rather than too wide. There is only one way to work ribs strictly to plan, and that is: 1, Work the rooms on "sights"; 2, to insist upon the established room width not being exceeded, and, 3, that the lengths of rooms be uniform. Any departure from these rules only to be permitted by the proper party for special reasons. Thus only will satisfaction be given, and it implies constant attention to sights, measurements and supervision of work at the working faces by competent officials; in other words, success in taking out ribs, as in other departments, is alone to be had at the price of organization, discipline and everlasting vigilance, coupled with experience, judgment and tact.

It was not inadvisedly that I said the ideal room-and-pillar system is to draw the pillars with machines, for I have thought out a plan, which is considered to be new, whereby the longwall type of machine should be a success. The plan I refer to has received the endorsement of practical men, and it is proposed to describe it later on.

DOUBLE COMPARTMENT SHAFT, YELLOW ASTER MINE, CALIFORNIA.

THE CANADIAN MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.

Specially Reported for the Engineering and Mining Journal.

The party that took the special train from Quebec on August 19th for Sydney numbered about 200 persons, the American contingent being nearly 100. The long ride was without special incident; the weather was cool, agreeable companions were with us and the time passed quickly. We arrived at Truro about 6 o'clock Monday evening. Here members and friends of the Nova Scotia Mining Society, which had joined with the Canadian Institute in inviting the Americans to make this trip, took the train and were with us during our stay in Nova Scotia.

The party arrived at Sydney at 11:30 o'clock on Tuesday morning. Luncheon was served in the large dining hall of the Steel Company, at the conclusion of which short addresses were made by Dr. James Douglas, president of the American Institute of Mining Engineers; Charles Fergie on behalf of the Canadian Institute, and James J. Lewis, president of the Rand Drill Company of Sherbrooke, Quebec. Mr. Moxham, manager of the Dominion Iron and Steel Company, extended hearty welcome to the visiting mining engineers and their friends. At the invitation of Mr. C. A. Meissner, the party inspected the extensive works of the Steel Company.

Wednesday was given to a trip to the historic town of Louisburg, the various collieries of the Dominion Coal Company being inspected en route. The party took a special train leaving Sydney at 10 A. M., and under the pilotage of Manager Hiram Donkin inspected Dominion No. 1 reserve colliery, Dominion No. 2 Caledonia colliery and Dominion Nos. 3 and 4. When Dominion No. 2 was reached we were told that the men sinking the new shaft had struck coal on the harbor seam 400 feet from the surface while sinking a new shaft 47 by 11 feet. This shaft will go down 500 feet further or until it strikes the Phelan seam. It is to be divided into compartments, two for each seam, and will have an output of 600 tons per day. The company expected the seam to be struck at 366 feet.

The visitors were entertained at luncheon by the Dominion Coal Company, and in an address of welcome, Manager Donkin stated that the output of the Dominion Coal Company, which in 1893 had been 800,000 tons, rose to 1,750,000 tons in 1899. This year it would be 2,225,000 tons, and in the near future it would be 5,000,000 tons. Once it had been a case of their coal seeking a market; now it was the markets seeking the coal.

Dr. Douglas, Charles Fergie and W. L. Tibbey, of the Nova Scotia Mining Society, replied.

Thursday morning the party left for New Glasgow via the Bras d'Or lakes, famous for their scenic beauty. The weather so far had not been of the best. It was cool enough, too cool, in fact, for those who had passed through the recent hot wave in the States, but the sky had been

generally cloudy and some genuine down East fogs had interfered sadly with sightseeing.

The trip through the Bras d'Or Lakes proved rather pleasant as the weather showed improvement enough to permit the visitors to get a good idea of the character and topography of the country around the lakes.

On Thursday evening about twenty members of the party who wished to visit Newfoundland took the steamer "Bruce" to Port-Aux-Basques, where they were to connect on the following morning with the Newfoundland Railway, the transportation being furnished by Mr. R. B. Reid, proporietor of the railway. Thence the party was to go to the Wabana Iron Mines of the Dominion Iron Company, on Belle Island; thence to St. Johns, Newfoundland, where several days were to be spent, and the return trip was to be made by steamer "Buena Vista," kindly placed at the societies' disposal by the Dominion Coal Company, direct to North Sydney.

On account of some delay in getting the second installment of the train across the Strait of Canso to Mulgrave the train did not arrive at New Glasgow until two o'clock Friday morning, but the excursionists were amply repaid for the delay. Shortly after breakfast leading citizens of the town were on hand with teams and all the ladies and many of the men enjoyed a drive up Fraser's Mountain, where a fine view of the valley of the East River was had. The weather was delightful.

A large number of the gentlemen took the train for Stellarton and Westville and inspected the different collieries. At Westville they were the guests of Mr. and Mrs. Fergie. Several went up to Ferrona in charge of J. Dix Fraser and inspected the blast furnaces. At noon the train started for Trenton. A large number of New Glasgow citizens, including many ladies, accompanied the visitors. The Westville band was also on board.

A thorough inspection of the steel works was made. The works were running full blast and the party had an opportunity to see the forging of a large shaft for a new steamer for the Richelieu & Quebec Steam Navigation Company. The visitors were shown over the works by Messrs. Fraser, Graham and Cantley. The train was again boarded and a start made for Pictou. Landing there the fine steel steamer "Princess," of the Prince Edwards Island Navigation Company, was awaiting the excursionists. A large number of Pictou people also joined the excursion at this point. The steamer sailed out the harbor into the Gulf of St. Laurence, past Pictou Island until the shores of Prince Edwards Island could be plainly discerned and then returned. A more delightful sail could hardly be imagined, as the sea was smooth and the sun warm. A splendid lunch was served on board.

A vocal concert lent charm to the occasion. All the old Scotch songs were sung and many that were not sung. The "Star Spangled Banner" and "God Save the Queen" brought the concert to a close.

Dr. Douglas made a speech on the after deck, in which he thanked the people of Pictou County for their hospitality. D. C. Fraser replied for all concerned.

Pictou Landing was reached at 6 o'clock and soon after the train started for New Glasgow. Here the visitors assembled on the platform and gave three cheers for the people of New Glasgow, singing "They are Jolly Good Fellows." Three cheers were given for the Fraser family, for Harvey Graham, the Clan McKay, H. S. Poole and Mr. and Mrs. Fergie. Then all hands sang "Auld Lang Syne."

The special train arrived at Halifax at 11.30 Friday night. Nearly all the excursionists remained on the cars until Saturday morning.

Saturday the party took a tram car ride around the city, and in the afternoon were the guests of the Royal Nova Scotia Yacht Squadron. In the evening they saw "Parada" at the Academy Theater.

Sunday to some members of the party was a day of sightseeing, but to most it was a day of rest.

The program for Monday included a brief session for the presentation of papers, etc., and trips to the gold mines within reach of Halifax under the auspices of the Mining Society of Nova Scotia.

STOPING WITH MACHINE DRILLS.*

By Victor G. Hills.

These notes are presented in discussion of Mr. B. L. Mane's paper read at the California meeting, and show the experience had in the Cripple Creek District with "baby drills."

Two years ago the Anchoria-Leland Mine began to use baby-drills; and, to make the experiment more complete, began by purchasing two machines, of the same size, but of different make. The little drills were first used for stoping and upraising, in which they achieved at once an unqualified success. Soon after, they began to be used for the smaller branch-drifts and prospecting cross-cuts, while the large two-man drills were still used for the main drifts. Now they have almost entirely superseded the large drills, since it has been found that they will do any ordinary work in the mine at less cost, both for labor and for powder, per ton of rock broken. The large drills, of course, make more rapid progress; but it is only where time is a specially important factor that they are now used. The Portland Mine, where until within a year, only the large machines were used, is now using some small drills for stoping, and also for drifting.

Mr. Thane speaks of having two men to operate a baby-drill; but in this district the baby-machine is always worked by one man without help. Some statements leave doubt as to just what Mr. Thane means by a "baby-drill." To avoid any such uncertainty as to the present communication, I will say that the large or two-man drill in common use at Cripple Creek has a 3⅛-in. cylinder; while a few mines employ a 3-in., and a few, in running large tunnels,a 3½-in. drill. What we call a baby-drill here has a 2-in. cylinder, and uses ⅞-in. steel for "starters" and ¾-in. for the long drills. Such a machine will handle drills 8 ft. long; but holes are usually from 4 to 5 ft., and seldom more than 6 ft. deep. In this district these drills are always used with a bar, are commonly spoken of as "one-man drills," and are operated strictly as such. That is to say, the machine-man has no help, either to set up or to run his drill; does his own loading and blasting, and has to shovel away his own waste sufficiently to make room for his next set-up.

It is with such a drill, thus operated, that the following records were made: Total length of holes drilled in one shift of 8 hours, 35 to 45 ft.; average, 39 ft. Of course, the amount of ore broken, or the length of level driven in a given time or at a given cost, depends on the thickness of vein or the size of headings, as well as the character of rock; and, therefore, the length of the drill-holes in a given rock is the only fair test of the efficiency of the drill. But some additional particulars may be interesting. A man driving a drift or cross-cut, 4 by 7 ft. in section, puts in 9 to 12 holes for his shift's work. Records by the month, without any allowance for break-downs, sickness, holidays, etc., show an average of 4.3 ft. to 4.7 ft. per day with two shifts. A man frequently makes 3 ft. a shift for many days in succession. In making an upraise 4 ft. wide by 8 ft. long, a man averages 2 ft. per shift, doing his own temporary timbering. Regular timbermen follow, 10 to 15 ft. behind, providing a safe place to store the machine, hose, etc., at blasting-time.

Shaft-sinking with these little drills is illustrated by the following record: Size of shaft, 17.1 by 8.2 ft.; depth of working, 900 to 1,000 ft.; no water. Two baby-drills sank the shaft 5 ft. every two days; the machine-men working only 1½ shifts in 48 hours, and an equal amount of time being required to remove the waste and put in a 5-ft. set of timbers. Five "muckers," working one shift, are required to remove the waste. If anyone knows of a record for cheaper sinking in a shaft of that size and depth, I should like to have it reported.

A company furnishing compressed air for general distribution in this district charges $2 per large drill per shift, where only a small number of drills are used. I understand that there is a considerable discount to mines using a large number. By actual test at the Anchoria-Leland Mine, we have found that a small compressor, which would just operate two 3⅛-in. drills, will run five 2-in. drills. Coal costs from $4.50 to $6 per ton, according to quality. From the above data, the cost of air for drills of different sizes and under different conditions may be estimated.

For intelligent comparison of results in mine-working, something of the quality of rock and other conditions must be known. The rock in which the above work was done is a highly indurated and, in general, comparatively seamless andesitic breccia, hardness 6 to 7, specific gravity 2.4 to 2.7. Eight hours is a day's work for every miner in the Cripple Creek district. Machine-men receive $4, other miners $3 per day.

*Abstract of paper presented to the American Institute of Mining Engineers.

MINE TIMBERING IN GERMANY.*

By Frank H. Probert.

The following notes are presented as part of the written discussion on the paper on "Deep Mining at the Utica Mine," presented by Mr. J. H. Collier, Jr., at the California meeting.

The system of timbering which Mr. Collier describes as used in the levels, stopes, etc., though it must be admitted to be very strong and safe, seems to me somewhat extravagant. The amount of timber required every month for such a system must be enormous; and only where suitable material could be cheaply obtained would such a plan be economically practicable.

The first point which strikes me is the unusually great diameter of the timber employed. In the mines of Pfaffenberg and Meiseberg, Germany, which are under my supervision, the country-rock consists of argillaceous slates, traversed by innumerable small fissures or joints, dipping at all angles and striking to all points of the compass. Undoubtedly, this network has been caused by the upheaval of granite masses in the vicinity. Each fissure is accompanied by a more or less well-defined gouge or fluccan, caused by the rubbing together of the slates at or after the original disturbance. In such a mine the timbering must be of the very best quality and design; but we are compelled to exercise economy in this respect. It is often necessary to timber a level, both at the top and on both sides, for from 150 to 200 m. Thürstock timbering, supplemented by poling, is our general method. The posts are either round or rectangular, and seldom more than 20 to 25 cm. in diameter. The foot of each post is set firmly into the floor of the level, or, when no sound footing is obtainable, sills are used. The caps are also either round or square, and of about the same diameter. When the roof alone needs support, we simply cut a shallow curved notch in the top of the post to take the shape of the cap (see Fig. 1); but when both the roof and sides of the level are insecure, we cut the timber as shown in Fig. 2. This part of the work is all done underground. The posts and caps, having been sawn on the surface into the previously measured lengths, are then sent to the working-place, and the timbermen, kept exclusively for this work, cut the notches and fit them together. Such men are paid at the rate of 2.50 marks (about 62c.) per shift of 10 hours, or, whenever practicable, by contract, according to work done.

In very loose ground, poling is resorted to. Here again I am compelled to think that the poles used at the Utica Mine are unnecessarily bulky. Our poles rarely exceed 2 m. in length and from to 18 cm. in diameter. They are made of pine, which is found to be very good for the purpose. When we encounter running ground, posts and caps are set up about 1 m. apart, and the whole ground is made secure in the manner described by Mr. Collier; the only difference being that we use oak laths instead of poles. These laths are from 10 to 15 cm. wide, 4 to 5 thick and 80 to 120 long. One end is sharpened, to allow it to be more easily driven into its place by blows from a hammer. The man who superintends the hydraulic pumps makes such laths in his spare time, at so much a hundred. This system of timbering is shown in Fig. 3.

*Abstract of discussion at the American Institute of Mining Engineers, Washington meeting.

It is calculated that each running meter costs 15.70 marks (about $3.90), as follows: Timber, 13 cm. wide, 16 broad and 5 m. long, cut into lengths of 2.2 and 1 m., 4 marks; wages for cutting this from the rough by hand-saws, 0.70 mark; poles (75 pieces required for every meter of level), 4 marks; wages for cutting these poles, 2 marks; wages of two timbermen, 5 marks; total, 15.70 marks.

For the permanent timbering of levels, oak is used wherever possible. It lasts from 10 to 15 years, whereas pine lasts only 4 or 5 years; so that, in the long run, oak is more economical. It is found, however, that where there is much water, pine is better. For the temporary timbering of stopes, pine is almost always used.

In the stopes, I am of the opinion that much more could be done with the "deads" than is set forth in Mr. Collier's paper. If I understand his account, it implies that a great quantity of such material is obtainable from the driving of levels and the development of the ore-bodies. Here in the lower Harz mountains we make use of these "deads" in many ways. Instead of using timber to make ore-chutes and manways, we employ two men to select the largest and best pieces of waste-rock, and to build with these, to the required height, as the stope is raised, the necessary chutes. (See Fig. 4.) These men are paid 1.30 marks (about 33c.) per square meter of walling. The chutes require practically no repairs, and are absolutely solid if properly built. No cement of any sort is used.

FIG. 1.

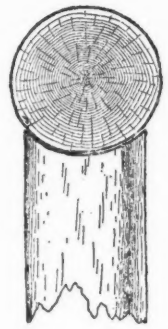


FIG. 2.

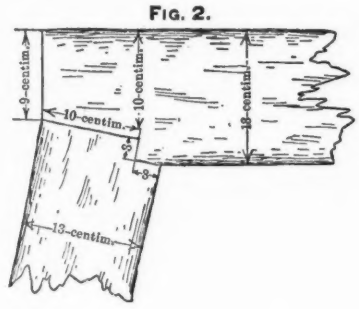
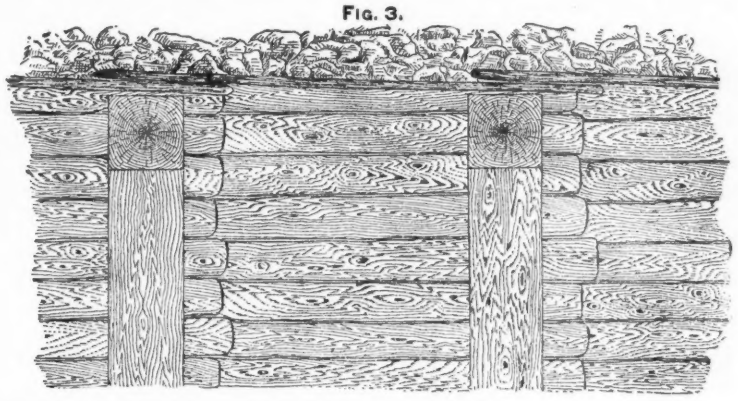


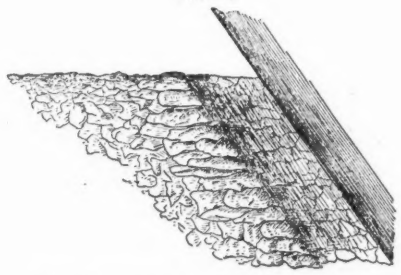
FIG. 3.



MINE TIMBERING IN GERMANY.

Again, the miners themselves have to sort all the rock and put the ore into the chutes. The "deads" are stacked up in the form of a wall to support any loose ground, the fine stuff being used to make a good floor for the stope. Should a mass of rock become loose, it is immediately secured by the miners with a post and cap, until it can be supported by deads, when the post is withdrawn, so that practically no timber is lost. As the stopes are worked out the space below is filled with deads. We find this much cheaper than putting in square sets, and then filling in with "deads."

FIG. 4.



MINE TIMBERING IN GERMANY.

ELECTRIC TRANSMISSION IN CANADA.—The Shawenegan Falls water power electric plant of the Shawenegan Water Power Company, of Canada, it is stated, will be ready to supply power to Montreal, Canada, over a transmission line 80 miles long in the spring of 1901. At first the works will develop 30,000 H. P., but it is stated that the plant will subsequently be increased to develop 75,000 H. P.

GERMAN ELECTRICAL INDUSTRY.— Some interesting statistics respecting the German electrical industry have just been published. On March 1st there were 652 electrical works in Germany, against 489 at the like date of 1899; and there were 122 works in course of construction, 17 of which have since been finished. It is a remarkable evidence of the progress of the German electrical industry that more towns in the Empire are now supplied with electricity than with gas. The number having electricity is 900, while only 850 towns have gas. There are in Germany about 150 public companies, joint stock and other, which manufacture electro-technical articles, and it is estimated that they have a capital of about $130,000,000. Besides these there are about 6,000 private undertakings, with a capital of $70,000,000. Thus the capital of all producing companies amounts to $200,000,000. Besides the producing companies there are many financial companies which undertake the building of electric railways and lighting and power plants; these have a total capital of about $112,500,000. The increase of capital is still going on this year.

THE TANGENTIAL WATER-WHEEL.*

By W. A. Doble.

After considering the difference in design, and also in wear and erosion, of the buckets of the several types, as compared with the ellipsoidal bucket, it is of interest to note the higher efficiency in the practical results ascertained from the wheels. Relative-efficiency tests are the most reliable, and really give the best insight into the relative values of the several buckets. The most recent, and perhaps the most interesting, of such comparative tests is one recently conducted in the power-plant of the San Joaquin Electric Company, Mr. J. J. Seymour, president, of Fresno, Cal. This case was particularly interesting, owing to the fact that the wheels were running under a head of 1,410 ft., the horse-power developed being approximately 500 H. P. per wheel, and the plant having been designed to be of high class, and in fact represent the best efforts of the builders. It was comparatively new. Under working-test, the wheels had failed to give as much power as was anticipated. The water available being of limited quantity, the builders of the plant had spent some time tuning the wheels up to their highest efficiency. After they had reached their best results, another maker attempted to improve the efficiency by substituting his buckets, but without success. On one wheel, however, the original buckets were removed and ellipsoidal buckets substituted in their place, all other parts of the plant, that is, the nozzles, generators and other apparatus, being left in their previous condition. With the same quantity of water delivered through the same nozzle, the ellipsoidal buckets carried an increased load of 10½ per cent. above the best results of the builders. This was indicated on the switchboard-ammeter, which gave the increased horse-power output of the generator, secured simply by substituting the ellipsoidal for the original buckets. The changing of these buckets and the testing were done by the employees of the San Joaquin Electric Company, the makers of the ellipsoidal buckets not being represented. A number of other tests have been made, all of which have shown an increased efficiency of from 10 to 15 per cent., depending, of course, upon the efficiency of the original wheels.

ABSTRACTS OF OFFICIAL REPORTS.

Mount Morgan Gold Mining Company, Queensland.

The latest report of this company covers the year ending May 31st, 1900. The amount received from gold sold during the year was £748,919; interest and sundries, £2,791; total, £751,710. The working expenses were £386,990; royalty and taxes, £26,142; total, £413,132, leaving a balance of £338,578. The profit and loss account shows balance as above, £338,578; transferred from reserve fund, £45,000; total, £383,578. On the other side are debit balance from previous year, £6,281; dividends paid, £350,000; total, £356,281, leaving a balance of £27,297 forward to current year.

From the underground works during the year there were taken 20,932 tons oxidized ore and 59,291 tons sulphide ore, a total of 80,223 tons. From the surface workings there were taken 248,492 tons of rock, 159,053 tons being ore and 89,439 tons waste. The total ore supply for the year was, therefore, 239,276 tons. The development work done was 3,191 ft. in all, which does not include the surface or open-cut work. The ore treated and the gold obtained was as follows:

	Tons ore.	Gold, oz.	Per ton.
Oxidized ore	38,331	57,410	1.50
Mundic ore	26,863	57,205	2.13
Low-grade oxidized ore	141,654	53,215	0.38
Low-grade mundic ore	32,428	19,522	0.60
Totals	239,276	187,352	0.78

There were 45,225 tons of slag, ash, lead scrapings, etc., treated by smelting, which yielded 2,821 oz. gold.

The ore is treated by chlorination, and the report says that there were used in the production of chlorine 954 tons of manganse ore, 901 tons salt and 3,308 tons sulphuric acid. In making the acid there were used 922 tons of sulphur from Japan and 82 tons of niter. The use of the Gay-Lussac and Glover towers in making acid has proved very successful, 13 per cent. more acid having been made last year than in the previous one, at a lower cost.

The manager's report says: "The West Works have been working constantly except for minor stoppages for effecting small repairs. No alteration has been made to the works of any importance, and the only addi-

*Additional note to paper read before the American Institute of Mining Engineers, California meeting.

tion effected consisted of some machine tools for facilitating repairs and renewals and minimizing stoppages. The first section of the Mundie Works has been in constant operation since it was started in the beginning of the year—except for a few minor stoppages for small alterations and adjustments such as are usually incidental to a new plant. The output from it has been increasing, and will probably continue to do so as the staff become more skilled and familiar with its special features. The second section of this plant, which is practically a duplication of the first, will be finished in a few months. The lower works have been kept running with a small amount of mundic ore, but it will be necessary to shut them down entirely as soon as the additions to the Mundic Works are completed, and sufficient of that ore can be treated thereby. In previous reports I pointed out that as most of the chief features of the Upper Works are either obsolete or getting worn out, it would probably be advisable to alter them, or build an entirely new plant, as very probably a large saving in working expenses would be effected. Since our new works have demonstrated a very large saving in all grades and kinds of ore, it is now a certainty that a saving in the working expenses can be effected by either altering this plant or building a new one at the earliest date consistent with making it as perfect as experience can suggest, and that will fit in with the general programme of construction and alteration. Scale experiments were conducted during the last few months in the separation and precipitation of a small amount of copper contained in the ore, with the result that this appears to promise one of the most considerable of the minor economies that has been in hand of late."

Arizona Copper Company, Limited, Arizona.

The report of this company of Clifton, Arizona, and Edinburgh, Scotland, for the half-year ending March 31st, 1900, shows that a net profit of £126,000 has been made on the copper operations and £32,000 profit has been made by the company's railroad. The report is an interim one, so that a full financial statement is not given, the complete results being given only every year. The copper produced was 9,467,401 lbs., being at the rate of 789 short tons per month. During the months succeeding the period named the monthly output has been rather less, on account of various temporary reasons. The company is unfortunately still engaged in litigation with regard to the rearrangement of shares at the recent reconstruction. The death of the chairman, Mr. Auldjo Jamieson, is greatly regretted, for his services as such, ever since 1883, were of inestimable value, especially in pulling the company out of the critical position that it was in during its earlier period of existence.

COAL-OUTCROPS.

By Charles Catlett.*

Probably no one has had occasion to examine an undeveloped coal property without hearing some hopeful or interested party insist that the bed will improve when opened some distance under cover. When the bed is already in good condition, the opinion is usually advanced that the same character may be expected, at least to the bounds of the hopeful individual's holdings. My attention has been called in this way to the extent to which a bed is affected by its outcrop at the surface; and I submit some observations bearing on this question.

Whatever may have been the original variations, we may assume that coal-basins presented in comparatively modern times approximately parallel beds interstratified with fire-clay, slate, sandstone., etc., under erosion.

It is obvious that such parallel and horizontal beds exist under differing conditions in their exposures to atmospheric agencies, pressure and erosion. The effect of the first is to decompose and soften many of the strata; of the second, to cause the movement of such material as was at all plastic toward the point of least pressure; and of the third, to remove the strata in whole or in part. It is obvious that the pressure is not as great at or near the outcrop as it is some distance under cover; and the tendency, therefore, would be to increase the thickness at the former point and elevate the outcrop by the thickening of the strata beneath; but the effect is not conspicuous as the material forced out is peculiarly liable to erosion. Still where beds of coal along the sides of a valley cut in substantially horizontal strata are underlain by thick beds of free clay they show a dip from the outcrop owing to this thickening of the fire-clay.

The author presents a study of typical sections from a wide territory, covering Virginia, West Virginia, Kentucky and Alabama, of which six sections out of thirteen show an increase in coal-thickness of 6.45 per cent. on being driven under cover; seven sections out of thirteen show a decrease of 4.75 per cent. in the coal-thickness on being driven under cover; six sections out of eleven show a decrease of partings, on being driven under cover, of 30.24 per cent.; five sections out of eleven show an increase in partings, on being driven under cover, of 27.46 per cent.

An examination of the sections shows a marked similarity between the seam at the surface and when opened a reasonable distance under a solid top; which was borne out by numerous other examples. Beds will vary from point to point, and will present often, without apparent reason, marked irregularities; but observation of the section shows that the changes due to the nearness of the surface alone can be recognized and allowed for, and that it is possible to form from the outcrop a very nearly accurate idea of what may be expected 50 of 60 or 75 feet under the top.

A very soft, sooty material, called by the miners "mother-coal," may pass, in that distance, into a coherent but friable material. It is usually exceedingly pure. Hard streaks in the coal are emphasized at the surface; and a material which is coal, but is obviously high in ash, may be found, owing to the increase of volatile and oily material, to become often of fair quality, on driving a short distance under cover, and be classed in a section at that point as pure coal. A slaty material which is very black and friable will, as a rule, pass into inferior coal, in the distance named; and, when in small quantities, would probably, in a section 50 feet from the outcrop, be described as bony coal. Hard, undecomposed gray slate, on a well-defined bed, may be expected to continue as such without, necessarily, an increase or decrease within the distance named. A plastic slate or a fire-clay, existing as a portion of the coal-bed, may usually be expected to thin very considerably within a short distance, as its section at the surface is, in nearly all cases, increased by the reduction of pressure at that point.

These views go to show that it is better to prospect a coal property by making a number of openings along the outcrop than by drifting under cover.

*Abstract of paper read before the Canadian meeting of the American Institute of Mining Engineers.

EXPERIMENTS REGARDING THE INFLUENCE OF SILICA ON THE LOSS OF SILVER IN SCORIFICATION.*

By Lester Strauss.

The fact that the loss of silver in the slag of the smelting process increases with the amount of silica in the furnace charge, was probably the ground of a general opinion that the silver is present in the slag as a silicate. Dr. Iles, in his interesting experiments upon the slags of scorification, found in no instance any silicate of silver. These experiments, however, were made with pure crystals af $AgNO_3$—a circumstance which may have affected their results; since it is conceivable that an intimate mixture of metallic silver with silica might more strongly favor the formation of a silicate. Fusing at a low heat for three hours, and then allowing to cool, 6.8 grammes of $AgNO_3$ with 1.2 grammes of pure anhydrous SiO_2 (these proportions corresponding to the equation, $2AgNO_3 + SiO_2 = Ag_2SiO_3 + N_2O_2 + O_3$), Dr. Iles obtained a bright brick-red slag, the color of which was due to Ag_2O_2.

The only other experiments of interest bearing upon this subject are the crucible-assays reported by Mr. Furman, in which he assayed 108.15 and 102.75 mg. of silver with ½ A. T. of SiO_2, and found the losses to be 2.47 and 1.93 per cent., respectively. With low-grade ores, Mr. Dewey found the loss higher. Mr. Furman assayed also 116 mg. of silver with 7.5 grammes of SiO_2 and 7 grammes of FeS, and found the loss of silver to be 4.66 per cent.

It would seem that in an assay of silver with silica the presence of an iron sulphide tends to keep the Fe silver loss nearly constant. To test the influence of silica in scorification, pure ores (pyrite, zinc blende, galena or stibnite) sulphur, silica and test lead (all free from silver) were mixed with filings of silver .99 fine and free from iron. The temperature was kept between 900 and 1000c., and the amount of silver and test lead as nearly constant as possible. As a result of the experiments the author thinks that the behavior of the metallic sulphides in scorification with silica and silver is not uniform, but varies with the nature of the ore, and extended investigation is necessary to determine the cause and law of this variation, but these experiments appear to warrant the following conclusions:

1. That in assays of pure silver and lead, an increase in the amount of silica present increases the loss of silver in the slag.
2. That in the presence of sulphides, an excess of silica increases the silver loss, but that this loss is apparently diminished when sulphides are present with a relatively smaller amount of silica.
3. The experiments, though by no means conclusive, suggest that the same recovery of silver cannot be expected from different mixtures or ores of the same silver value, and seem to require a modification of Dr. Koenig's statement that an assay "made with clean sand, the 30 mg. of silver, wrapped in lead foil, being placed on the top of the charge, sand and test-lead, . . . gives the minimum loss."

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

WHEN CONSTRUCTION OF WELL IS A CONDITION PRECEDENT.—Where an oil and gas lease by which the lessor is to be compensated solely by a share of the product contains a proviso requiring the lessee to commence and complete a well on the property within a specified time, such proviso and the time of performance are of the essence of the contract, and it constitutes a condition precedent to the vesting of any estate in the lessee, without regard to the grammatical construction of the instrument. When the lessee makes no attempt to construct and evinces no intention of doing so, at the expiration of the time stipulated the lease becomes forfeitable, at the option of the lessor, although by its terms it is for a definite term of years; and being in possession, the exercise of such option is sufficiently evidenced by the lessor's execution of a new lease to another party. A different construction obtains as to oil and gas leases from that applied to ordinary leases, or to other mining leases, and owing to the peculiar nature of the mineral, and the danger of loss to the owner from drainage by surrounding wells, such leases are construed most strongly in favor of the lessor. The lessee cannot by the tender of a penalty, provided for in the lease, retain the lease in force until the expiration of the term, and thus secure an option on the property for speculative purposes. When by his failure to comply with the condition, further performance of the contract becomes optional on his part, it is also optional on the part of the lessor. By a course of decision in West Virginia it is settled that under such conditions as above, the lessee has merely the right of possession for the purpose of exploration and development; and there is always an implied, if not expressed, covenant for diligent search and operation.—Huggins vs. Daley (99 Federal Reporter, 606); Circuit Court of Appeals of the United States for West Virginia.

* Abstract of paper read at the Canadian meeting of the American Institute of Mining Engineers.

SIGNAL-DEVICE FOR MINES.*

By C. S. Herzig.

Some time ago, in Mexico, our signal-bells in a 700-ft. shaft caused us considerable annoyance by continually getting out of order, each time so delaying our hoisting operations that we naturally desired to remedy this evil. There were two ways open: either to patch up the old bell, which was of the ordinary pattern, every time it failed to work, or else to devise some new arrangement. On consultation with our foreman we designed a signal-device which, during the number of months I watched its operation, worked satisfactorily, without once getting out of order.

We sought to produce a simple device, in which no greater pull on the lever would be necessary from one level than from another; to counterbalance independently the weight of the pendant bell-rope, so that there would be no direct weight on the working-parts of the bell itself, and likewise to arrange it so as to necessitate only a light pull on the lever in signaling; and, finally, to make some sort of trip-arrangement, so that whenever the signaling-lever underground passed through a certain arc the signal would be given in the engine-room. By this means we wished to obviate the ill effects of sudden heavy pulls and rough usage in general, such as all signaling systems encounter underground at the hands of careless or mischievous employees.

The bell-rope we had in use was a galvanized iron rope 7/32 in. in diameter; and, after determining the length needed, we calculated its weight, so that we might be able to counterbalance it properly. On locating the bell in the engine-room a wire, W, is led off horizontally, and, by means of a bell-crank, is connected to the main signal-rope, M, passing down the shaft (see Fig. 1). The weight w_2 counterbalances M, and should be heavy enough to carry the wires back to a normal position, therefore it must be equivalent to the weight of the pendant rope, M, plus a factor to overcome friction.

The working parts of the bell itself are shown in Fig. 2. A is a weighted lever, to the upper end of which the connecting wire W is attached; the arm a projecting from it is made of steel, about 5 in.

FIG. 1.

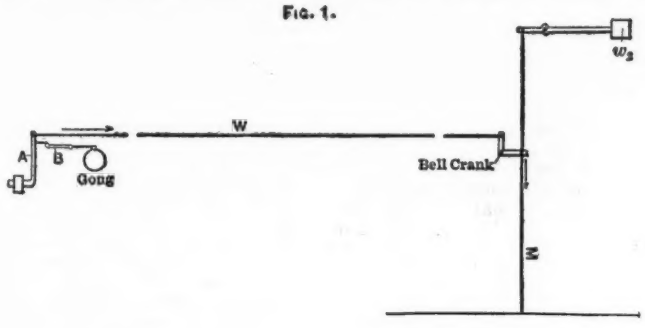


FIG. 2.

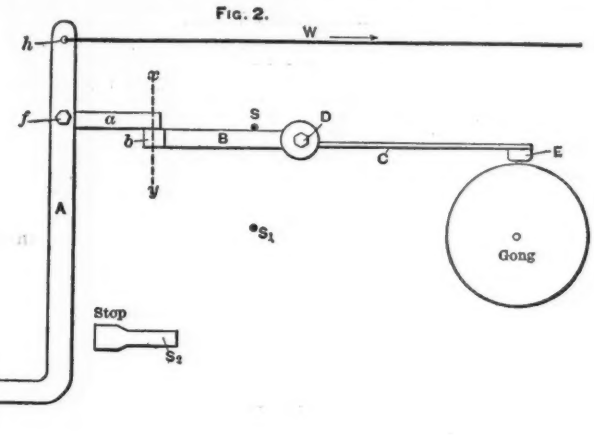


FIG. 3.

FIG. 4.

FIG. 5.

MINE SIGNAL SYSTEM.

long, and has a bearing-surface of 1 in. at its further end, resting on a similar surface b on B. A cross-section through x y is shown in Fig. 3. B is a piece of flat spring-steel about 8 in. long, at the end of which is the bearing surface b. D serves as a hub, to which B and C are attached; C being a flat spring similar to B, but about 12 to 14 in. long, at the end of which is the knocker E. It should be observed that B is vertical, whereas C lies flat, and that C should not be as heavy a spring as B.

When the bell-rope is pulled to signal the engineer,the wire W moves in the direction of the arrow, and the arm a traveling downward in a circular path, around f as a center, forces b to move downward around D as a center, until the arcs in which they are traveling diverge far enough for gravity to carry B-C back again to its normal position, B being arrested by the stop s; however, the force with which the arm flies back causes the knocker to strike the gong, and thus give the signal. As soon as the bell-rope is released the arm A is carried back to its original position, and in so doing the triangular surface on the end of a slides upon the inverted triangle b (see Fig. 4), forcing it to one side (see Fig. 5), until a rests in its normal position on top of b, when it is ready for another pull, as shown in Fig. 3.

In counterbalancing the weight of the pendant bell-rope, sufficient weight must be added to the counterbalance to bring the levers underground back into position automatically. The counterweight may be located at any convenient place on the head-frame, providing it is above the bell-crank to which W is attached.

In order to prevent the pull necessary for signaling from becoming excessive, it is desirable to reduce friction as much as possible. A force equivalent to a 10-lb. weight should be sufficient for pulling the levers in a well-arranged signaling-system. To accomplish this, I think it advisable to bring a bell-rope into proper alignment by means of plumb-lines, and to hold the rope in position by short pieces of old iron pipe 2 to 3 in. long, instead of by means of staples, as is so commonly done. In inclined shafts the bell-rope should be supported at frequent intervals on some form of roller. The spools on which connecting-wire comes make good rollers, in the absence of anything better.

That there may be no mistake, the arm C should be long enough, and the knocker E heavy enough to cause their instant return to position when the paths of a and b part company. For this purpose it is also advisable to put a stop, s_1, below B, so that by no possible chance can it fly beyond its balance-point.

By increasing or diminishing the bearing of the triangles a and b, the arc traveled can be changed. In my opinion it is not advisable to increase this bearing above the inch mentioned before. The triangles, as shown in section, Fig. 3, should have bases of about ¾-in., with perpendiculars of ¾ in. to 1 in. The bearings of the two points f and d should be good ones, so that there will be no lateral motion, which might make a fail to engage properly with b. Any play at d or f is considerably magnified at the triangles; but by making the bases of these triangles large enough, the chances of their not working properly are greatly lessened. By moving the position of h with respect to the center f, the arc of pull underground, necessary to signal, can be regulated.

The spring B must be quite stiff and of good material; but it must be borne in mind that the stiffer the spring the heavier must be the weight w_1 and, in consequence, the greater the effort required to pull the levers; nevertheless, w_1 must be heavy enough to bring back the wire W and to overcome the resistance of the spring B. If the arm A is made sufficiently heavy, the use of a counterweight (w_3) may be dispensed with, although it is preferable to arrange as shown in Fig. 2; for by this means it can be properly adjusted. If w_1 is too heavy, the arm A has a tendency to pound against the stop s_2. While w_1 must not be too heavy, its weight must not be cut down to such an extent as to impair the instant return to position of the arm A. The whole apparatus may be mounted on a board and placed at some convenient spot in the engine-room.

*Paper read before the American Institute of Mining Engineers, Canada meeting.

NAILS FOR ELECTRIC WORK.—Vulcanite or ebonite nails—"hart-gummi-nagel—having the advantage that they can be used in many cases where iron nails would be out of place, have been brought out by a firm in Hamburg, Germany, says the London "Engineer." These nails are not attacked by oxidation or chemical agents, are bad conductors of electricity, and unaffected by magnetism, so that their use is quite indicated for many purposes in connection with mining. With vulcanite nails there is no fear of electrical leakage, as is always the case with metal nails; and vulcanite hooks can be used for hanging conductors, while the insulation of the latter is less likely to be impaired. Moreover, the property of not conducting electricity and of being insensible to magnetic influence renders the use of these nails invaluable for laboratory purposes, and also in connction with the manufacture and use of explosives.

AMERICAN RAILS FOR SOUTH AFRICA.—There is a growing impression that we are happily now within measurable distance of the close of the South African war, says London "Engineering"; and, as an illustration of this, it is stated that the Carnegie Steel Company of Pittsburg has secured an order for 4,000 tons of steel rails for the Cape Government railways. This is said to be the first order for rails which has been received in the United States from South Africa since the commencement of hostilities. It would have been more satisfactory if this order for rails had come to some English firm, instead of going to an American company; but it is, at any rate, a sign that the Cape Government begins to see the end of its troubles, and is once more applying itself to the work of railway extension. The repair of the existing Cape Government railways will probably also involve orders for a considerable quantity of material.

COPPER MINING IN CHILE.—According to the report of the British Consul-General in Chile, Sir Berry Cussack-Smith, for the past year, which has just been published, the total export of copper ores from the country was 35,290 tons, or nearly 15,000 tons more than that of the preceding year. But he says that the statistics of the exports give no adequate idea of the revival in the copper-mining industry of the country. A number of mines have been reopened, new companies formed, and more scientific and economical methods of working introduced. Cheaper transit is the main essential to profitable working, and this can in most cases be secured by the outlay of the necessary capital. It has been said that copper is the real mainstay of Chile, and, although the Government has been content to live for years on the taxation of the nitrate industry, the Consul-General holds that the true wealth of the country lies in its inexhaustible rich minerals.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like will be reproduced whenever possible. Specimens should be of moderate size and should be sent prepaid. We cannot undertake to return them. If analyses are wanted we will turn specimens over to a competent assayer, should our correspondent instruct us to do so and send the necessary money.—Editor E. & M. J.)

198.—Ochre.—A. E.—The samples you send are evidently the residual clays left by the decay of some rock carrying iron and are not of even color and texture. The light-colored sample is probably valueless; the dark sample is of better color but not of uniform texture. Ochres are of such common occurrence that only those of superior quality have a market value. Best prepared American ochre is worth per short ton, New York $21.50 to $25; common, $9.25; best French ochre 1¼c. per pound. The crude ochre is prepared for market by washing, drying and grinding. See "Engineering and Mining Journal," April 28th, 1900, p. 510. Such ochre as you send, situated in South Carolina, 12 miles from a railroad, would probably not pay for working. Crude ochre has little market value.

199.—Supposed Fuller's Earth.—A. L. M.—The sample of clay you send has the color of Fuller's earth but not its physical characteristics and is probably unsuited for the purposes for which fullers' earth is used. There is no easily applied tests for fullers' earth. The suitability of a clay for purifying oils can be determined finally only by direct experiment. Your clay has not the texture of true fullers' earth.

200.—Gold Ore.—Oregon.—The samples you send from the Susanville District are a fine-grained basic rock carrying numerous seams and bunches of sulphide of iron. In places also the rock evidently carries a small percentage of copper. The rock looks rich and promising, but it is impossible to judge values; such determination must be through analyses. The rock is not free milling, but is rather a smelting proposition.

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Berkefeld Water Filter.—Will you kindly inform me through the columns of your valuable journal whether the Berkefeld filter, which was described by Dr. Endemann before the Society of Chemical Industry, New York Section, May 25th, is manufactured in the United States or not; and if so, by whom?—T. D.

Answer.—The Berkefeld water filter is a new device. The agents for the United States are August Giese & Son, No. 2 Cedar Street, New York City.

German Society of Engineers.—Can you give me the name and address of the German Society of Engineers?—J. G.

Answer.—The society to which you refer is the "Verein Deutscher Ingenieure," probably the largest engineering society in the world. The total membership of the society, as shown by the 1900 catalogue, is 15,125. The society comprises many engineering societies scattered over Germany, the largest being that of Berlin, and includes 3,000 members not attached to any one of these societies. For any information as to dues, etc., write to the director, Th. Peters, 43 Charlottenstrasse, Berlin, N. W., Germany. The society publishes a weekly "Zeitschrift," price 32 m. per year.

Tin Ores.—Do you know of any place from which complex sulphide tin ores containing antimony, arsenic, silver and lead or any of these can be obtained in large quantities?—S. V.

Answer.—In still further answer to this question, Mr. Job Hedges, of Azura, Los Angeles County, California, writes us as follows: "In looking over the 'Engineering and Mining Journal' of May 5th, 1900, I noticed an inquiry for complex sulphide tin ore, containing antimony, arsenic, silver and lead, or any of these that can be obtained in large quantities. I would state that my company has immense bodies of tin ore, carrying a large per cent. of gold in tellurium form, and a smaller percentage of silver-bismuth and arsenic, and perhaps other metals, within a few miles of this place. I would be glad to give any further information desired."

Titanium in Clay.—Where can I find any account of the effect of titanium or titanic acid occurring as an impurity in fine clays?—Pottery.

Answer.—Dr. Heinrich Ries—"Clays of Alabama"—says: "Titanium generally occurs in clays in the form of the mineral rutile (titanic oxide). It has always been looked upon as a rare element and a non-detrimental impurity, but the idea of its rarity has probably resulted from the fact that it is not commonly determined or looked for in the ordinary quantitative analysis. Its effect on the fusibility of clay has never been thoroughly understood, although it has seemed probable that its action was somewhat analogous to that of silica. The experiments of Seger have indicated that when 100 parts of kaolin and 6.65 per cent. of titanic oxide were heated to above the melting point of wrought iron, the resulting mass was densely sintered, and showed a dark blue fracture. A proportion of 13.3 per cent. added to 100 parts of kaolin gave a deep blue enamel at the same temperature, while an equal amount of kaolin with the addition of 10 per cent. of silica burned to a snow-white mass at the same temperature and did not fuse. From this it will be seen that the actions of titanium and silica at high temperatures are not exactly alike."

Clipperton Island Guano.—Some time ago I read in a commercial paper something about an alleged new discovery of guano on the Clipperton Island. As this Clipperton Island guano has been known to the trade for about 10 years, I would like to hear whether you know anything about any really new discovery of a guano deposit on those islands. It was also said that the Mexican Government had entered into a contract with an English firm to work the new deposit. If you are in possession of the name of this firm, kindly let me have it.—C. S.

Answer.—The item you mention is probably some revival of an old paragraph. Such notes are sometimes dug out of old clippings and started on a new round without proper consideration. We do not know of any really new discovery of guano on the Clipperton Islands, nor of any special new arrangements for exploiting the deposits there.

Mercury Bottles.—Can you tell me: (1) What is the shape and weight of the bottles commonly used for transporting mercury; (2) what is their capacity; (3) are they used in large quantities, and by whom; (4) where are they made and where can they be obtained?—D. B. A.

Answer.—The bottles or flasks used for transporting quicksilver are generally made of boiler iron and are cylindrical in shape, about 12 in. in height and 4 in. in diameter, with a screw plug inserted in one end. The capacity of a flask is 76½ lbs., and its weight about 14 lbs. Such flasks are used by all producers of quicksilver and pass through the hands of various dealers till they reach the consumer. The total number used in this country cannot be very large as the total product last year of quicksilver in the United States was but 28,879 flasks, and the same flask can be used again and again till it gets too rusty inside. A flask can easily last 25 years. We understand most of those now in use are made abroad, but the National Tube Company of McKeesport, Pa., has made them. Most of the second-hand flasks in use can be bought for 25 or 30c. apiece.

Mining Engineers in China.—I am a mining engineer, chemist and surveyor, 30 years old, now employed by a steel company to give report on ore properties. I have been thinking of going to China as soon as the war is over to start a consulting engineer's office. I am a Swede and have made a tour of study round the world, and to me it makes no difference if I live in the United States, Canada or China. I speak German and a little French. As I have very little knowledge of the prevailing state of matters in China, I would like to know if you think it advisable to give up a steady position with good salary and start for China.—G. C.

Answer.—We should not advise anyone to think of going to China, at any rate, for some time to come. The outcome of the present troubles is entirely too uncertain to justify anyone in making the venture. It is quite possible that several years may be required to pacify the country and open it to foreign enterprise. Moreover, we do not think that there will be any opening in that country for a consulting engineer's office. The Chinese certainly would not use the services of a foreigner if they could help it, and the European companies or syndicates who may undertake the exploitation of minerals will be provided with their own engineers. No mining engineer should attempt to go to China except in the employ of some such company or syndicate, and under a definite contract or engagement. At present a state of war exists in the country and a person not connected with the military forces would hardly be permitted to enter the country at all; and it is difficult to foresee when this condition will come to an end.

PATENTS RELATING TO MINING AND METALLURGY.

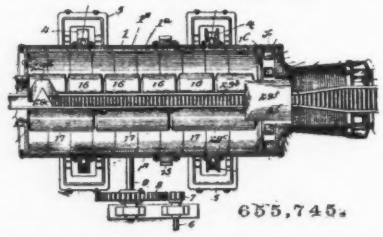
UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending August 14th, 1900.

655,743. DERRICK ATTACHMENT FOR HANDLING DRILL-ROD SECTIONS OF WELL-AUGERS. William E. Thomas, Fontanelle, Iowa. A shaft for pulleys having a right-angled extension at one end adapted to enter a fixed perforated ear, a hanger having a shaft-bearing at its lower end and a hook-shaped trunnion at its other end, a yoke or rope-guide extending at right angles from the shaft, two pulleys mounted on the shaft to rotate jointly, a rope fixed to each pulley and perforated ears fixed to a derrick for pivotally connecting the shaft and hanger with the derrick.

655,745. CYLINDRICAL ROLLER-CRUSHER. Thomas C. Walker, Denver, Colo., assignor of two-thirds to James E. Bowden, same place, and Charles A. Gehrmann, Idaho Springs, Colo. The combination, with



655,745.

a rotatable cylinder, of a series of rollers in a line therein, and an independent roller or rollers each of greater length than the rollers comprising the first-named series adapted to roll parallel to the said series of rollers within the cylinder.

655,758. EXCAVATOR. Arthur E. Cheney, George A. Cheney and George W. King, Marion, Ohio, assignors to the Marion Steam Shovel Company, same place. The combination of the boom, the excavating-shovel, a cylinder, a suitably-actuated piston within the cylinder,

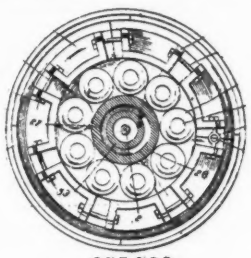
the piston-rod bearing two sheaves, an equalizing-sheave supported at an equal or approximately-equal distance from both piston-sheaves, and the hoisting-cable looped around the equalizing-sheave from the piston-sheaves and leading around the piston-sheaves to and being suitably guided over the boom and operatively connected with the excavating-shovel.

655,779 and 655,780. ELECTRIC FURNACE. William S. Horry, New York, N. Y., assignor to the Union Carbide Company, Chicago, Ill. Means for regulating an electric furnace having a movable element and a motor for working it, said devices arranged to respond only to predetermined variations in the furnace-circuit thereby keeping the furnace-current approximately constant.

655,783. ELECTROLYTIC APPARATUS FOR DECOMPOSING METALLIC SALTS. Carl Kellner, Vienna, Austria-Hungary. Apparatus such as described, an external vessel for containing an electrolyte, suitable anodes, a mercury cathode suspended above the bottom of said vessel by suitable means, a chambered structure dipping into the cathode, means for moving said structure through the cathode and means for placing one or more chambers of the chambered structure in communication with the external vessel.

655,784. EXCAVATOR. George W. King, Marion, Ohio. A suitably-supported incline extending downwardly and outwardly from the machine's body portion, and a cable attached at one and to the outer and lower end of the incline, and attached at its opposite end to the body portion.

655,793. QUARTZ MILL. Alexander T. McMurtrey, Medford, Oregon. The combination with the pan of mullers, consisting of sections of a flat ring, provided with inner and end flanges, the latter having opposite notches, of double-headed bolts dropped into said notches, to couple the mullers loosely together, a vertical shaft, a yoke carried



655,793.

thereby, knees secured to the arms of the yoke, a cap or driving-ring secured on said knees, and a coupling-pin passed downward through the cap and into the eye in one of the muller-coupling bolts.

655,813. PREPARING MAPS, DRAWINGS, ETC. Nicolas Tornauw, St. Petersburg, Russia. The process of treating maps, drawings and the like, which consists in waterproofing the same, covering the same with a transparent adhesive substance, and applying a finely-powdered hard substance thereto.

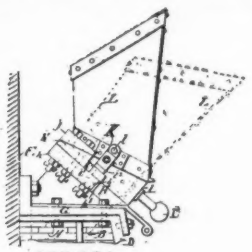
655,832. BLASTING-POWDER. Joseph Ross and William D. Cairney, Glasgow, Scotland. An explosive consisting of a mixture in about the following proportions of ingredients: Chlorate of potash, 75 per cent.; black oxide of manganese, 6 per cent.; charcoal, 6 per cent.; wax, 9 per cent.; vaseline, 4 per cent.

655,868. APPARATUS FOR CUTTING METAL SHAVINGS. August Holtgen, San Francisco, Cal., assignor of one-half to William E. Hampton, same place. An apparatus consisting of an arbor upon which a sheet of metal is rolled and secured, a cutting-tool adapted to contact with the end of the roll thus formed, and means including a feed-screw having a ratchet and a connection from the arbor engaging the ratchet for feeding the tool forward at each revolution of the arbor.

655,909. COMBINED VISE AND APPARATUS FOR RAISING OR LOWERING WELL-TUBES. Oscar H. Nebel and Oscar B. Hanson, Austin, Minn. The combination of a vise forming a base for the apparatus, and comprising two members connected together in a hinged manner and arranged so as to move horizontally toward and from each other; said members being provided on their inner faces at an intermediate point of their length with vertically-disposed teeth or serrations whereby they are enabled to hold a tube.

655,920. MANUFACTURE OF CARBON. William J. Burke, Scranton, Pa., assignor of one-half to Henry A. Kaufhold, same place. Carbon for electrical and other purposes, manufactured from impalpably-powdered anthracite coal, and an oleaginous substance, thoroughly mixed together and carbonized in a mold, or suitable receptacle.

655,931. CHARGING-HOPPER FOR GAS-PRODUCERS. George R. Hislop, Paisley, Scotland. A charger for heating-furnaces of gas and other retorts with hot residual coke consisting of a crown-plate having in it a mouthpiece opening to an inclined charging-chute, a doorway



655,931.

thereon furnished with a self-sealing door hinged thereto, and a charging-hopper jointed to the mouthpiece or doorway, and adapted to tilt into position to receive the fuel from said retorts.

655,942. HYDROCARBON-BURNER. Bernard F. Weber, Chicago, Ill. The combination with a cylindrical casing divided between its ends into two compartments adapted to be connected respectively with an oil-supply and a fluid-pressure supply.

655,955. EXCAVATING-MACHINE. Luke V. Brophy, Chicago, Ill., assignor by mesne assignments to Frederick C. Austin, same place. The combination with a rotary dipper constructed to excavate toward the machine, of a pivotal mounting for said dipper permitting the movement of the dipper substantially in the horizontal plane of its axis, and means for actuating said dipper and for controlling its pivotal movement.

656,023. EXHAUSTER AND BLOWER. Charles H. Kenney, Hartford, Conn. An exhaust-fan having two standards with an annular series of slots around the head of each standard, a shell with an inlet-opening through one side and an outlet-opening through the edge, adjustable between the standards, bolts extending horizontally through the slots into the sides of the shell and adjustably securing the standards and the shell, bearings held by the standards, a shaft supported by the bearings and a fan mounted upon the shaft within the shell.

656,048. EXPLOSIVE AND PROCESS OF MAKING SAME. Joseph Ross and William D. Cairney, Glasgow, Scotland. An explosive consisting of a mixture in about the following proportions of ingredients: Chlorate of potash, 87 per cent.; charcoal, 3 per cent.; wax, 7 per cent.; vaseline, 3 per cent.

656,056. BRICK-PRESS. Clarence M. Steele, Statesville, N. C. A framework, a mold-box in said framework, a vertically-reciprocable cross-head mounted in said framework above the mold-box, an operating-shaft provided with cams and a plunger.

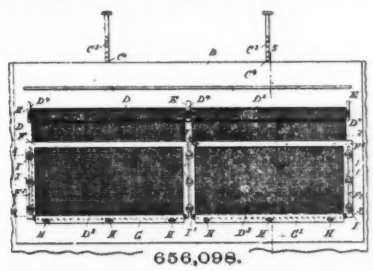
656,077. MANUFACTURE OF INCANDESCENT MATERIALS FOR ELECTRIC LIGHTING. Georg Altfeld, Darmstadt, Germany, assignor to Ludwig Wilhelm Gans, Frankfort-on-the-Main, Germany. Forming a body of the desired shape from one or more of those oxides of the earthy metals which becomes conductive and luminous at elevated temperatures; applying to the surface of the body so formed a partial coating of a ceramic lustrous preparation of one or more of the highly-infusible metals of the platinum group; and lastly, burning said ceramic preparation in to reduce the same to a metallic form and cover the coated portion of said body with a superficial adherent film-like deposit of such metal or metals.

656,089. MACHINE FOR CLEANING, BURNISHING OR POLISHING TIN-PLATE. James W. Bryson, New Castle, Pa. A conveyor, a pair of feed-rollers at the inner end of the chute, a pair of brush-rollers journaled at one side of the feed-rollers, an inclined chute below said brush-rollers, another pair of feed-rollers at the inner end of said inclined chute, a pair of brush-rollers opposite said last-mentioned feed-rollers, an inclined chute suspended from the conveyor-chute, and a conveyor-belt below said lower feed-rollers.

656,094. COMPOSITION OF MATTER FOR PAVING ROADS. Charles A. C. de Caudemberg, Nice, France. A paving composition, comprising powdered asphalt intimately mixed with rubber dissolved in spirits, the rubber forming a thin film surrounding each of the molecules of asphalt and operating as a binder to bind the whole together in one homogeneous mass.

656,095. PLATE FOR SECONDARY BATTERIES. John B. Conrad, Chicago, Ill., assignor to the Hewitt-Lindstrom Motor Company, same place. A plate for storage batteries composed of a frame and two oppositely-facing series of non-intersecting individual and distinct bars, each bar being triangular in cross-section and connected at its ends to the opposte sides of the frame, all the bars in both series being parallel, but alternate bars being members of opposite series and disposed on opposite faces of the plate and facing in opposite directions.

656,098. SCREEN FOR STAMP-MILLS. Martin R. Driscoll, Frisco, Utah. A screen for stamp-mills, comprising an apertured frame, a roll of screen-cloth mounted above the aperture and having a portion of the cloth extending over the aperture, the said roll being adjustable to bring the roll in firm contact with the front face of the apertured

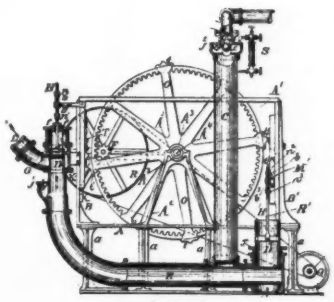


656,098.

frame, a rectangular clamping-frame for clamping the cloth to the sides, top and bottom of the aperture, bolts for adjustably holding the clamping-frame in place on the apertured frome, and an auxiliary clamping-bar on the apertured frame for clamping the lower end of the cloth upon the front face of the bottom bar for the rectangular clamping-frame.

656,103. MINER'S OR CAMP STOVE. William Forker and William Mitchell, Glenwood Springs, Colo. A sectional sheet-metal stove separable transversely and each section provided with rings on the lower side and near the inner end thereof for supporting it pannier-like on an animal and means for securing the sections in connected position.

656,147. HYDRAULIC AIR-COMPRESSOR. John W. Van Brocklin, Seattle, Wash., assignor of one-sixteenth to Russell L. Dunn, San Francisco, Cal. The combination of a wheel and cams carried thereby with sliding bars having projections engaged by the said cams,



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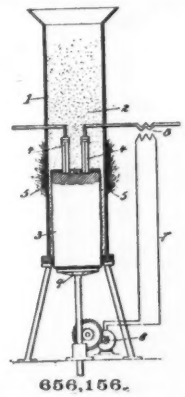

656,156.

racks moving with said cams, an intervening cogged idler engaging the said racks to insure reciprocal motion, a water-inlet valve and water-outlet valve operated by said slides and adjusting-nuts and springs for regulating the action of the valves.

656,156. METHOD OF PRODUCING CARBIDE OF CALCIUM, ETC. William S. Horry, New York, N. Y. The dustless method of making carbide of calcium and the like which comprises arranging electrodes of opposite polarity in a substantially-vertical position and electrically maintaining a zone of reduction near their depending ends, feeding a charge around and betweeen and above the electrodes to a depth sufficient to oppose the passage through it of the evolved gases and supporting the product beneath the charge and electrodes and thereby forming a lateral path of least resistance from the heat zone, conducting away the evolved gases laterally by said path, and shifting the carbide and charge vertically in respect to the electrodes to bring successive portions of the charge into the zone of reduction.

PERSONAL.

Mr. C. C. Burger, consulting engineer for the Cook-Turner Company of New York City, has returned from a trip abroad.

Mr. H. Van F. Furman, mining engineer, has returned to Denver, Colo., after 2 months' professional investigation of mining properties in Alaska.

Mr. E. W. Sprague, formerly representative in the West of the Gillett-Herzog Company, has been appointed sole Western agent of the American Bridge Company, with offices at Denver, Colo.

Mr. Hudson H. Nicholson, mining engineer of Denver, Colo., is at present examining mining properties in the Fra Cristobal District of New Mexico in the interests of the American Mining Investment Company.

Col. Truman H. Aldrich, 3d vice-president of the Sloss-Sheffield Steel and Iron Company, Birmingham, Ala., and general manager of the mining interests of the company, has gone to Lakewood, N. Y., to spend a few weeks with his family.

Mr. C. F. Meissner states that there is no truth in the report of his resignation from the employ of the Dominion Iron and Steel Company, of Sydney, Cape Breton. He still holds the position of mineral engineer and has charge of the company's ore mines, etc.

Mr. Thomas C. Gorrie has been appointed superintendent of the Santa Ysabel Mine, Trinity County, Cal. Since 1892 he has been in California, and has acted as superintendent of the Jumper Mine, adjoining the Santa Ysabel.

Mr. Robert S. Billings, for many years connected with the Pueblo, Colo., smelters as purchasing agent, has been appointed general purchasing agent of the Rocky Mountain Smelting Company, which is erecting a large smelter at Florence, Colo.

Mr. R. C. Mason has resigned as superintendent of construction at the new stamp mill of Mass Mine at Ogima, being succeeded by Henry Key, who put in the foundations at the Franklin mill, and has been engaged on the new Isle Royale mill. He is considered a first-class man.

Mr. Frank P. Sherwood, who has been identified with mining interests in Spokane and British Columbia, is on his way to the west coast of Africa, where he will take charge of the mining properties of the Gold Coast Agency, a branch of the Consolidated Goldfields of South Africa.

Mr. Eugene H. Teats, manager of the Marowyne placer mines in Dutch Guiana, South America, arrived in Denver a few days ago, on a short visit to his family, who reside there, and will leave again soon for his field of labor. The company has a very large plant on its property and intends shortly to increase the same by additional machinery.

The Board of Governors of McGill University has made the following appointments in the faculties of applied science: Neville N. Evans to be assistant professor of chemistry; Fred. Soddy, Douglas McIntosh and Charles F. Lindsay, to be demonstrators in chemistry; S. B. Allan to be demonstrator in civil engineering; E. Andrews to be demonstrator in mining; P. W. K. Robertson to be Dawson fellow in metallurgy.

OBITUARY.

Fairman Rogers, a prominent citizen of Philadelphia, died in Vienna, Austria, August 22d, aged 67. He had dwelt abroad for many years. Mr. Rogers was born in Philadelphia of an old family, on November 15th, 1833, and was graduated from the University of Pennsylvania in 1853. Immediately after leaving college he was elected a lecturer on mechanics in the Franklin Institute and remained there for 11 years. In 1855 he was appointed professor of civil engineering in the University of Pennsylvania, and filled that post until 1871. On retiring he was elected a member of the Board of Trustees of the university. He resigned in 1886. In 1878 Mr. Rogers gave to the University of Pennsylvania a complete library of works on engineering. This was to commemorate his father, Evans Rogers.

At the outbreak of the civil war in 1861 he served with the City Troop as first sergeant, and after Captain James' death was its commander. He also served in 1862 as a volunteer engineer officer on the staff of General Reynolds, and in '63 in the same capacity with General William F. Smith, thus taking part in both the Antietam and Gettysburg campaigns. He was also connected with the United States Coast Survey, and in 1862 completed the survey of the Potomac River.

Mr. Rogers was a member of the American Society of Civil Engineers, the American Philosophical Society and one of the original fifty members of the National Academy of Sciences, being elected thereto by the United States Senate in 1863. He was for many years a member of the Board of Managers of the Pennsylvania Academy of Fine Arts and was a member of the committee having charge of the erection of Centennial Exhibition buildings. He wrote much on scientific and engineering topics and was a famous sportsman.

SOCIETIES AND TECHNICAL SCHOOLS.

Michigan College of Mines.—The annual graduating exercises of this school were held at Houghton, August 30th. The graduating class numbered 27.

The school has issued an attractive collection of news, showing the equipment of the school and the manner in which students are given practice out of doors and underground in meeting actual mining problems.

INDUSTRIAL NOTES.

The Coburn Trolley Track Manufacturing Company of Holyoke, Mass., announces that it has moved into new and enlarged shops.

F. W. Barnaclo, patent attorney, states that, on account of increasing business, he has been compelled to enlarge his law offices in the Equitable Building, Baltimore, Md.

The town of Boulder in the new gold fields of West Australia was recently equipped by the B. F. Sturtevant Company of Boston, Mass., with generating sets for lighting and power purposes and electric motors for operating hoists, etc., in the mines.

The American Shipbuilding Company, of Cleveland, O., is constructing 2 steamers and 2 schooners of about 3,000 tons capacity each at Cleveland for the Calumet & Hecla to carry down mineral and bring up coal. The Calumet ships about 75,000 tons of mineral to Buffalo smelters annually.

The big shops of the Rogers Locomotive and Machine Company, at Paterson, N. J., the oldest concern in the city, are to be closed and the company, which employs about 1,000 men, will go into liquidation. Contracts on hand will last till January 1st. The principal reason for this action is said to be the desire of Jacob Rogers to close out his interest. Besides, competition from plants more favorably located has cut down profits.

The Robins Conveying Belt Company of New York City has received a grand prize for its exhibits at the Paris Exposition. The company has in Palace of Machinery and Electricity, United States section, two 51-c.m. conveyors in operation; in the Palace of Metallurgy and Mining, United States section, two model conveyors with trippers in operation, and at Vincennes, near the machinery, two 51-c.m. conveyors with tripper in operation.

TRADE CATALOGUES.

The Detroit Valve and Washer Company, of Detroit, Mich., is sending out attractive little pamphlets calling attention to its hydraulic leather packings for flanges and plungers.

The J. H. Montgomery Machinery Company, of Denver, Colo., has recently shipped a full plant of milling machinery (crusher, rolls, feeders, concentrators, etc.) to Lake City, Colo.; a hoisting plant to Dillon, Mont.; 2 whims to Spokane, Wash.; a hand-power diamond drill to Cambridge, Idaho; a pumping plant to Empire, Colo., and a large order of general machinery to Salida, Colo.

The Brown Hoisting and Conveying Machine Company of Cleveland, O., has issued what is about the finest catalogue issued by an American house that we have yet seen. Its 140 pages are printed on heavy plate paper and the illustrations are lithographic reproductions of scenes about ore docks, coal yards, blast furnaces, etc., where Brown conveyors are in use, or show the construction of various parts and devices. Bridge tramways, fast plants and cantilever crane are some of the famous productions of the Brown Company that appear in various views.

About the most sumptuous trade catalogue we have received is the 1900 album published by Arthur Koppel, of New York City, manufacturer of narrow-gauge railway material. This pamphlet, bound in a cover of striking design, contains 54 octavo pages with numerous beautifully printed half-tone cuts of scenes at mills, quarries, plantations, etc., in many parts of the world, showing the various uses and labor-saving value of industrial railways. The album is printed in 5 languages—English, French, German, Spanish and Russian, and is altogether a thing of beauty.

The Nordberg Manufacturing Company, of Milwaukee, Wis., issues an illustrated 50-page catalogue, describing Nordberg air compressors. The catalogue is of more than usual interest on account of the reputation the Nordberg Company has acquired for building heavy mining and milling machinery of original design and marked efficiency. This catalogue shows single two-stage, compound, two-stage and triple expansion, two-stage compressors, also belted compressors, natural gas and carbonic acid gas compressors and blowing engines. The company's two-stage compressors are provided with cylindrical rocking valves, Corliss valves, which the company believes best suited for air distribution, for single-stage compressors, compressing to over 30 lbs. above the atmosphere; self-acting poppet valves are used. The company has built compressors for the Newport Mining, of Ironwood, Mich., the Bunker Hill & Sullivan Company, of Wardner, Idaho; the Tamarack Mining Company, of Calumet, Mich., and the Boston & Montana Company, of Butte, Mont., and other well-known mining companies.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of any kind, and shall be pleased to furnish them information, catalogues, etc.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, and have no pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Argonaut.—Work is almost suspended on this property, near Jackson, pending the decision of the courts in the suit with the Kennedy Company.

Fremont & Gover.—This property, about 2 miles north from Amador City, is being developed on a large scale by a large force of men under the superintendency of C. E. Purrington. The foundations are being prepared for a new hoist and head gear.

Kirkwood.—An upraise of 80 ft. has been made from the tunnel to the surface, and is now being timbered. It will be used as the commencement of the 2-compartment shaft, which will be 5 by 14 ft. Sinking from the tunnel level will begin as soon as the necessary machinery is in place. The construction of the gallows frame is under way, and a 50-H. P. boiler and engine have been ordered. This property is located 2½ miles south from Jackson.

Calaveras County.

(From Our Special Correspondent.)

Angels.—Some of the old buildings are being removed to make room for the dump. Sinking continues. This property joins the Utica on the north.

Duchess.—Thirty men are employed on this property at Vallicita, a large amount of development work has already been done and the 7-mile ditch is completed. An air-compressor and other machinery are installed. The ore is fair grade.

Waters.—This claim on the Copperopolis road is being developed by the Mutual Mining and Milling Company of Boston; $3,100 has been paid on the bond. It is considered a promising property.

El Dorado County.

(From Our Special Correspondent.)

Alpine.—Three 8-hour shifts are employed on development work at this mine, 2½ miles southwest from Georgetown. The incline is now down 130 ft. The plant consists of a steam hoist and other machinery.

Inyo County.

(From Our Special Correspondent.)

Tuba Group.—These claims near Ballarat are being developed, the main being down 200 ft. and a quantity of ore blocked out. The mill is crushing about 40 tons per day of 24 hours. Most of the ore is free milling.

Kern County.

(From Our Special Correspondent.)

Winnie.—The shaft is down 100 ft. at this mine, in the Stringer District. From the drifts on this level about $3,000 in gold has been taken out by the leasers during the past 3 months. The owner, C. Koehn, is now sinking again. Some $60,000 has been taken from the mine and the shaft is still in good ore.

Madera County.

(From Our Special Correspondent.)

Magnet.—A tramway is being built at this mine in the Fine Gold District, 4 miles from

Hildreth, to connect with the ore bins. A 2-stamp mill is being erected which will be run by steam power for the present. The property is owned by a San Francisco company.

Mariposa County.

(From Our Special Correspondent.)

Mariposa Mining and Commercial Company.—At the Pine Tree and Josephine Mines about 35 men are employed. At the Princeton about 30 men, several buildings being under construction. The 10-stamp mill at this mine is running regularly crushing ore from the several prospects. At the Mariposa 40 men are employed, doing extensive development work.

Nevada County.

(From Our Special Correspondent.)

Midnight.—Development work has commenced on this property, on Deer Creek, below Piety Hill. Sinking will be resumed to a depth of 150 ft.

Riverside County.

(From Our Special Correspondent.)

Gavilan.—Nine men are employed underground at this mine, on the San Jacinto Estate, 8½ miles northwest from Perris. The mill is running full capacity. The lessors cleared over $1,600 from the July clean-up.

Ivanhoe.—This mine, in the Virginia Dale District, is reported to have been sold to a Los Angeles syndicate for $20,000. The property has been worked for 10 years, 4 shafts having been sunk, one 200 ft. and the others about 130 ft. each. The ore is said to assay $25 per ton.

San Diego County.

(From Our Special Correspondent.)

Stonewall.—About twenty men are employed at the cyanide plant at Julian, which is working the tailings hauled from this mine located 10 miles south. The results are said to be encouraging.

Sierra County.

(From Our Special Correspondent.)

Columbia Placer.—This property, comprising 1,000 acres of old river channel on the main ridge, between the Middle Yuba and the North Yuba, is to be opened up by J. M. Harper, who has a force of men running a tunnel into the channel from the head of Wolf Creek.

Middle Fork Ditch.—Seventy men are employed in the construction of this ditch, and 20 more are at work building a road from the head dam to the saw-mill. Work on the head dam will commence in a few days.

Siskiyou County.

(From Our Special Correspondent.)

Pittsburg Company.—This company is successfully operating the Sterling and Poole mines in the Hungry Creek District and is erecting a saw mill for cutting timber for the tunnels and mill.

Trinity County.

(From Our Special Correspondent.)

Adele.—The new rotary machine for working the cement gravel at this mine near Lewiston gives good satisfaction, and the gold-bearing sand which is saved will be shipped to the smelter. G. E. Bailey is superintendent.

Brown Bear.—The new mill is on the ground, and the buildings are in course of construction. Preparations are being made to move from the old millsite to the new one at the mouth of Thorn Gulch, near Deadwood.

Tuolumne County.

(From Our Special Correspondent.)

It is reported that the Tuolumne County Water Company's supply of water has been exhausted, and the power plant at Phoenix Lake shut down. Many of the leading mining companies depending upon this company for power and water to operate their mines and mills will be obliged to close down, throwing several hundred men out of employment until the fall rains set in. Most of the mines will continue development work. Some of the mines are operated by steam power.

Golden West Mining and Milling Company.—This company is working a mine on the Comstock Ranch in the East Belt. The tunnel in 850 ft. is to be retimbered, and a 2-compartment shaft sunk. A new car, rails, pipe, etc., are on the way to the property.

Mt. Jefferson.—The 10 additional stamps are being shipped to this mine at Groveland, and will double the milling capacity of the plant. The new buildings will be ready to receive the machinery in a few days.

Tri-color Consolidated Mining Company.—This company is working the Gagnere Mine at Tuttletown. An air-compressor has been contracted for and when installed, sinking in the 3-compartment will be resumed. A new hoist has been put in. The water supply is ample to run during the season.

COLORADO.

Gilpin County.

(From Our Special Correspondent.)

East Notaway.—Outside parties have taken a 6 months' option on this property and are erecting a new shafthouse and installing a plant of machinery on the deep shaft, which is down 700 ft. S. A. Josephi, of Denver, is manager.

Gilpin Tramway Company.—At the regular meeting the following officers were re-elected: W. L. Bush, of Idaho Springs, president; J. W. Bostwick, of Denver, vice-president; Fred Kruse, of Central City, secretary, treasurer and general manager.

Lombard.—A good strike has been made in this property at Yankee, in the upper tunnel. The crevice is 2 ft. wide, disclosing a good pay streak of lead and yellow copper ore, carrying high values. Dr. Abe Ashbaugh, Central City, is the owner and operator.

Ontario-Colorado Gold Mining Company.—A new 12x14 hoister of 120-H. P. capacity, built by the Vulcan Iron Works, of Denver, has been installed. Heavier operations are to be carried on and a larger production will follow. H. C. Eastman, Central City, is manager.

Washington Extension.—A 25-H. P. boiler is to be installed and sinking operations are to be commenced. The property is a consistent producer of lead ore. L. Drake, Central City, is owner.

Gunnison County.

Lewis Mill.—The Rock Creek Investment Company, an Eastern concern, of which J. P. Smith is local manager, owns 3 claims at Elks, and is equipping this old mill with 4 concentrating tables, giving it a capacity of 30 tons daily.

(From Our Special Correspondent.)

Crested Butte.—Following is the production from these coal mines for July: Coal, 26,072 tons; coke, 6,585 tons. This is the heaviest production ever made in one month in the history of this property.

Crystal District.—The Burt Mine has been placed among the regular shippers. The lower tunnel of the Lucky Boy has cut the vein at considerable depth. The vein is large and carries high values in lead, copper and silver. A. T. Ferris has opened a big vein of good lead ore in the Harris & Farley Lode. Shipments from the Carbondale have been suspended pending the completion of considerable repair work. The Hard Cash on Galena Mountain has opened a 4 ft. vein of high-grade lead ore. The old Elko Mill will start up with entirely new machinery in a short time.

Good Hope.—A new saw mill is being installed for cutting mining timbers for this property near Gunnison.

Gunnison & Standard.—This company was recently reorganized and will resume work at once on its properties in Spencer District, after a shut-down of a year.

Marble District.—New machinery has been received for the Osgood-Marble and will be running shortly. C. Johnson has taken a lease on the Day property and is in good ore. The Eureka is shipping a good grade of lead-copper ore, and a large body of zinc ore has been struck. The new Hoffman smelter has been blown in and is working full capacity. The Contact group on Treasury Mountain has been started with a small force.

Tin Cup District.—Work is proceeding on a small fissure of good-grade ore in the Gold King. The Wolverine group on West Gold Hill is developing a good body of gold ore; the vein is 6 ft. wide. The Overland will start with a large force at once under bond and lease to an Eastern company. The Olyninna has opened a 2-ft. vein of good shipping ore. The Copper Queen Nos. 1 and 2 has struck a vein of rich gold ore in the new shaft and shipments have been instituted. The Imperial is shipping occasional lots of good ore from an 18-ft. winze at the breast of a 225-ft. tunnel.

U. S.—A cross-cut is being run to cut the big vein at this Gunnison claim. The tunnel is now in 140 ft. and will be driven 100 ft. further.

Lake County—Leadville.

(From Our Special Correspondent.)

Leadville Stock Brokers' Association. — As Leadville has no mining exchange, the man who buys stock from the broker has to pay much more than if he wanted to sell. To remedy this the stockholders have organized and meet daily so as to arrange a schedule of prices.

New Zinc Mill.—Another large mill is being erected. This is on the old Adams ground and will be ready for use in September. It comprises a large Blake crusher, 3 5-ft. Huntington mills and 12 concentrating tables. It will handle the zinciferous ores of the A. M. W. combination, including the Adams, Mab and Wolftone.

Zinc Market.—Over 10,000 tons a month are shipped. Another 4,000 ton shipment has just been made by Jacobson & Company, of New York, to Belgium.

Across the Ocean.—Lessees headed by John McAllister have opened a nice vein of carbonate ore carrying both gold and silver and development is pushed.

California Gulch Mining Company.—This new shaft is down 530 ft. and a station is being cut.

Diamond.—A fine plant has been installed and the new shaft has attained a depth of 650 ft.

Evelyn.—The surface work will be completed by September 1st and machinery is in place which will enable Manager Starne to sink to 1,000 ft. This is one of the most important new enterprises on that part of Carbonate Hill and will open up entirely new territory.

Fanchon.—A new shaft has just been started after the Dinero Shoot on this placer on Sugar Loaf. Al Boyd is at the head of the company.

First National.—L. W. Reynolds and J. D. Murphy have secured a 5 years' lease on this property and valuable territory adjoining. Sinking to a greater depth the present 250-ft. shaft is to begin at once. In addition the low-grade iron and lead sulphide ore opened at 250 ft. will also be developed.

Home Mining Company.—While sinking at the Penrose has been going on, the Starr and Bon Air have been shipping 150 to 200 tons per day. The Penrose shaft is completed and a station is being cut at 580 ft., from which drifting will at once begin.

Little Alice.—This Breece Hill property has resumed operations after years of idleness. The shaft is down 300 ft. and large quantities of low-grade ore, which could not be handled successfully in the past, will be opened up. A new shaft is also to be put down.

Maple Street Mining Company.—Sinking operations are again under way on this new shaft at the extreme west end of the city. The contract calls for 400 ft., but the shaft will go deeper if necessary. A fine new plant of machinery has been placed in position.

Midas.—Shipments have increased to 180 tons of high-grade iron ore per day. Much development is in progress.

New Monarch Mining Company.—The Lida shaft is down 650 ft., having been sunk 125 ft. this month. In running an upraise from the new level the old blanket vein has been encountered and shipments will be greatly increased September 1st. The Monarch shaft No. 2 is conducting diamond drill explorations at 500 ft. and will sink 200 ft. to open the lower ore zone.

Nubian Mining Company.—While cutting a station at 550 ft., 4 ft. of rich carbonate ore has been opened up. At the Midland Shaft sinking is resumed.

Poverty Flat Mining Company.—Work on the new strike in the Seely shaft at 400 ft. is pushed vigorously. The ore body runs very low in silica and over 50% in iron. Work is also being pushed on the Jason Claim. This shaft is on the S. Small claim and carries mining in the Leadville Basin area 1,600 ft. further north than ever before.

Silver Moon.—At 100 ft. the small pay streak followed has widened to 10 in., the ore running $3 gold and 40 to 50 oz. silver to the ton. The shaft will be sunk another 100 ft.

Ten Mile Leasing and Mining Company.—The company has just been organized, with J. F. McDonald president, Henry Lee vice-president, F. W. Hurd secretary and treasurer. The company has the Surplus and New York placers and is going after No. 2 shoot from the Robinson. The shaft contract calls for 400 ft. to start.

Union Smelter.—This plant, which has been closed for some months, is to be overhauled. The 3 old furnaces are to be torn out and 4 new ones are to be built.

San Miguel County.

Japan.—This mine and mill, near Telluride, employ 60 men and ship 1 car a day of concentrates, the result of reducing about 5 tons of ore to 1 ton of concentrate. The values run about ½ gold and the other ½ silver and lead. The mill is equipped with crushers, rolls, jigs, concentrating tables and canvas tables. The jig tailings are reground by a Huntington mill The underground workings are extensive, the ore is opened 2,000 ft. longitudinally and about 5,000 ft. on the vein.

Smuggler-Union.—Both mills, the new and the old, are busy and handle about 450 tons a day. Additional equipment will be put in to increase the combined capacity of the 2 mills to 550 or 600 tons per day. A wire rope tramway line, 3,500 ft. long, is being put up from the entrance to Pennsylvania Tunnel to the old mill, supplementary to the main line, which runs from the main Smuggler's tunnel to the new mill.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Black Wonder Company.—Cripple Creek parties have secured an option on the entire Bull Hill property of this company.

Caledonia.—Work is resumed on this dam, which has been idle for about 2 months. The Monarch Leasing Company is working the mine.

Cripple Creek-Columbia.—It will be necessary to stop sinking on the Barbee and McDonald lease of this company on account of a flow of

water. The mine is not equipped with a pumping plant. A cross-cut for the Tillery Vein will at once be started.

Gold Hunter.—Superintendent Olan of this mine near Wallace, says the mine is producing good ore and giving employment to 100 men. Three round tables and 2 Wilfley vanners will be added to the equipment of the mill. The plant when the new machinery is installed will consist of 1 Huntington mill, 6 vanners, 4 sets of rolls and 4 round tables. The concentrates of the Hunter slime badly, and the tables, it is thought, will make a considerable saving.

John A. Logan.—A big machinery plant has been ordered for this mine on Bull Hill.

Pointer.—This mine, which recently began shipping, bids fair to become soon one of the big producers. Five levels are now opened, the mine is well equipped and has just purchased the Wide Awake group adjoining.

Roanoke.—The buildings which were destroyed by an explosion of dynamite last week are being replaced. Another strike has been reported, the rock being quite different from the usual Mineral Hill ore.

Union Gold Mining Company.—This company sold for a consideration of $350,000 its Pike's Peak-Orpha May group of claims, consisting of about 25½ acres of patented ground. Stratton's Cripple Creek Mining and Development Company is the purchaser.

GEORGIA.

Jones County.

Columbia Stymite Company.—This company has put in machinery to develop the deposit of kaolin on J. R. Van Buren's farm at Griswoldville, near Macon, and is starting work. The kaolin is said to be of excellent quality. F. Lehmann, of Chicago, superintended putting in the machinery.

IDAHO.

Blaine County.

Jumbo.—This group of claims near Harley, owned by the First National Bank of Harley, after several years' idleness, is to be worked by a company formed by D. Mackenzie, of Burlington, Vt. H. L. Hollister, of Boston, Mass., and Scranton, Pa., men who are having a 10-stamp mill erected. H. H. Cullom will have charge of the mill, while D. Mackenzie will act as general manager. The ore is rather low-grade. Messrs. Mackenzie and Hollister bonded the property last June. The company will have $250,000 capital.

Shoshone County.

Sunset Peak.—The ½-mile tunnel is being pushed ahead as fast as possible, the contractor getting a bonus from W. A. Clark for every day less than the time limit set for completing the work—October 1st. The mine is developed below the vein and the tunnel being driven is to permit the ore to be brought on the south side instead of the north side of Sunset Peak. According to present plans the ore will be hauled to the South Fork midway between Wallace and Mullan, where a concentrator will be erected.

KENTUCKY.

Harrison County.

Kentucky Lead Mining Company.—This company has been incorporated to work lead mines at Lair that have for many years been spoken of. W. D. Brickle, of Columbus, O., has been elected president; A. M. Cox, of Cynthiana, vice-president; Capt. W. M. Crawford, of Columbus, secretary, and L. P. Stephens, of Columbus, treasurer. The board of directors and executive board have been elected and all steps preparatory and necessary before the commencement of work have been taken. The executive board has a few men now at the mines.

MICHIGAN.

Copper.

Isle Royale.—At the mill work has started on the walls of the pump house and also upon the foundations for the boiler house. At the pumping plant site work is completed upon the walls of the boiler house and the structure is now ready for the steel work of the roof. At the pumping plant the concrete work for the foundations of the walls of the building, laid upon the piles which were driven and cut off below the water line, has been put in and the masonry is now going in. The 30-in. pipe from the pump to the mill is now going in.

The boiler house will be erected directly in the rear of the mill building and will be 60 by 72 ft. The footings of the walls are started and are 36 in. wide and constructed of rock taken out in blasting for a dam at the mine.

The work of filling the cylinders with concrete will be commenced just as soon as the crusher plant and screens at the mine are ready and have finished turning out rock for the pump foundation, which will take only a short time. The foundations for the bents of the railroad rock trestle into the mill are also in place. On the Isle Royale dock a 3 pocket movable coal hoist is nearly ready.

At the mill the first bents of the steel structure have been put in by the Wisconsin Bridge and Iron Works Company. The cylinders which are to form the foundations for No. 1 and No. 3 heads have reached bed rock successfully at a depth of 74 ft. The sinking of these cylinders was difficult as each is 12 ft. in diameter and at the top flares out to 20. The cylinders were sunk like a drop shaft, the edge of the cylinder forming the cutting edge and the cylinder being heavily weighted to facilitate the process.

Quincy Mining Company.—At No. 2 plant the new boiler house, with its 4 Wickes water tube boilers of 250 H. P. each, is completed. This building is 56 by 75 ft. and near it is the new machine shop, 62 by 145 ft., fitted with traveling trolleys for handling work and to be equipped with all of the machine tools used in a first class shop. A blacksmith shop is being erected which is 50 by 124 ft. The building will be completed about October 1st. The new compressor house is 69 by 53 ft. and will contain 2 30-drill Rand cross compound air compressors, one of which is now in place, according to local papers.

At the No. 4 plant the 8 old boilers have been replaced by return tubular boilers made by the Roberts Iron Works of Cambridgeport, Mass., one-half of which are in commission and the others are being put in.

At No. 7 shaft the Wisconsin Bridge and Iron Works is finishing a big steel shaft and rock house and 5 Hodge crushers are in place on the working floors, while the screens and shafting are also in place. At the engine house the installation of the new Allis hoist is being completed. This has a 28-ft. drum with an 11-ft. 9-in. face and a capacity of 8,000 ft. of 1½-in. steel rope. Its cylinders are 52 by 84 in. and the building and its contents will be ready as soon as the rock house. The new No. 7 shaft is timbered down to the 51st level and plats have been cut at the different levels. No. 6 is down to the 55th level and No. 2 to the 56th, while No. 8, or the Mesnard shaft, is now 520 ft. deep.

At the old Quincy stamp mill the work of replacing the finishing jigs with Wilfley tables was completed about July 1st, 10 Wilfleys having been put in which are a big improvement over the jigs. In the new mill, which is soon to begin stamping, there are 24 of these tables. The new vertical triple expansion Allis pump, with a capacity of 16,000,000 gal., is in place and the new mill will probably be put into commission in about 2 months.

It is reported that the Quincy now has 50 miles of underground openings and that it has ground in sight to maintain the present rate of production for the next 50 years. The mine is stamping about 2,100 tons of rock per day and by the use of the Wilfley tables is saving more copper than ever before. With the starting up of the new mill the mine will be stamping fuly 3,000 tons of rock per day.

Winona.—Work is at present confined to No. 2 shaft which is down to the 4th level, the skip road being extended as the shaft is sunk. Three drifts are being driven south from this shaft and 2 machines on day shift are cutting vein matter at the second and third levels. The drifts to the south are reported looking better than any part of the mine. A diamond drill is working on the west side of the property, but nothing of value has been reached as yet, although the drill has passed through several lodes. Ditching and pitting are also being followed wherever the surface will permit.

Iron—Gogebic Range.

An electric tramming railway has been installed at No. 1 shaft, East Norrie, and with some minor changes the system will be a great advantage. It will be gradually extended through the mine.

Iron—Marquette Range.

Bessie.—At this mine, near Humboldt, drifting at the 3d level is showing up a satisfactory ore body. No ore is being stoped. Capt. William Allen has charge.

Hartford.—The new shaft is down over 200 ft., and 100 ft. has been added to the old one. Excellent headway is being made, and the company is looking for fine results in this locality.

Queen.—There are nearly 200,000 tons of ore in stock at these mines of the Carnegie Company at Negaunee. Cambria and Little stocks are much reduced, and most of them will be cleaned out. They go chiefly to furnaces of the Republic Iron and Steel Company.

Star West.—Work at this mine in the Cascade Range, near Palmer, has been discontinued by Corrigan, McKinney & Company. About 100 men were employed at the location during spring and early summer, but only about 25 when word came to shut down. Shipments of ore have been going on at the rate of 6 or 7 carloads daily, and about 8,000 tons are in stock. The closing down of the Palmer, following that of the Volunteer, has caused many men to leave the village of Palmer. The mine will probably be worked if the iron market takes an upward turn next spring.

Winthrop.—A second crusher, at No. 5 pit, is working well. The first, at No. 3 pit, has been steadily in operation for a year without any considerable stoppages for repairs or any other unexpected cause. These are both Gates crushers. The Winthrop, belonging to the National Steel Company, is employing 100 men.

Iron—Menominee Range.

The various properties of the American Steel and Wire Company, in the Crystal Falls district, are closed down tight or are running with much reduced forces. The Hilltop is now idle, as are several others. The Chicago, Milwaukee & St. Paul road is to have its small ore dock at North Escanaba completed in October.

Chapin.—This mine, at Iron Mountain, is employing 1,000 men, and will continue this force all the year, although there has been a decrease in shipment by the dropping off of stock pile work. It is probable that far more ore will be carried over into 1901 than was expected when the season opened, and the 1,000,000-ton mark will hardly be reached this year.

MINNESOTA.

(From Our Special Correspondent.)

Ore shipments continue heavy, and the roads have their rolling stock busy. There is no change in freight rates since the last few reports.

Daily papers, etc., have made far too much of the Stevens Mine transfers between the Rockefeller and Carnegie interests. In this correspondence published August 18th the whole matter was fully and satisfactorily explained, and all subsequent card houses built upon rumors of great deals for immense ore tonnages from the Stevens—some say 1,250,000 tons a year for 50 years, which would be 62,500,000 tons!—are in error.

Duluth papers state that high-grade ore of a high character has been found west of Tower in T. 63, R. 17. As near as can be learned, this is merely the repetition of finds made some time ago, which were neither large nor important. The region is probably a westerly continuation of the Vermillion Range, and is a country where the coat of drift is deep. There is possibly ore there, but previous finds have not been satisfactory.

The Duluth & Iron Range Road now has its double track completed practically all the way from the docks on Lake Superior to the Mesabi junction point and along the latter line to the Fayal Mine, about 60 miles. A company telephone line connecting the docks, Mesabi range mines and Duluth is being extended to Tower and Ely. The road is receiving the first of its new 50-ton steel hopper bottom ore cars, of which 350 were ordered last winter. Numerous improvements are being made all along the road, in buildings, depots, track and equipment. It will become necessary as soon as more ore docks are required to extend harbor facilities at Burlington Bay, and it is probable that a preliminary appropriation for a much needed breakwater will be recommended the coming session of Congress.

Iron—Mesabi Range.

(From Our Special Correspondent.)

E. C. Garlick has closed his exploration near the Elba Mine and gone to Cleveland for the winter. The presence of ore in a satisfactory quantity has been proved, it is said.

The Mahoning Ore and Steel Company's mine is being improved in many ways. There is a stripping contract for which the contractor recently bought an outfit costing $35,000, and several hundred men are working at it. The grounds are being handsomely laid out, and several buildings are under construction. The location is furnished with excellent fire protection, the buildings with hot and cold water, and all conveniences. The Mahoning is shipping very heavily, and is expected to turn out about 1,000,000 tons by December. It is finding much ore that cannot be shipped and this is being put to one side. Daily shipments from the mine the season through are averaging about 6,000 tons.

Many of the private explorations under way not long ago have been abandoned, but the iron land market is in a better situation than of late.

Biwabik Mining Company.—This company is shipping very heavily, and should close the season with not far from 800,000 tons. This is 250,000 tons more than its best previous production. The company is doing some exploring elsewhere, and has secured several promising leases.

Clark.—This property has shipped 40,000 tons this year, an excellent showing for a mine that was a waste of forest at the opening of navigation. It is shipping 1,000 tons a day and is increasing underground development rapidly. It is interesting to note that the American Mining Company, the lessee, is closing down mines and explorations on all ranges.

Pettit.—The buildings at this mine owned by G. C. Howe, in n w of n w of section 25, T. 58, R. 17, have been destroyed by fire. They will be rebuilt at once.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The market for zinc ore opened a shade lower, the bulk of the Oronogo ore selling for $27.50 per ton during the early part of the week, but toward the end the price advanced and $28 per ton was paid for a large quantity of extra grade ore. The ore from the Independence Lease at Joplin, that from the King Jack and the Pelican Mine in Chitwood Hollow, the Star Mine at Springfield and the Eagle and Three Friends ore at Belleville brought $28. Buyers seemed to need high-grade ore and took everything in sight before Saturday night. Lead was a dollar per $1,000 lbs. lower, selling all the week at $22.50. Following is the turn-in by camps of the Joplin District for the week ending August 25th.

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,735,820	475,900	$47,640
Galena-Empire	1,751,570	223,070	25,913
Carterville	1,379,730	359,420	26,368
Webb City	543,130	39,620	7,821
Belleville	352,810	1,210	4,968
Oronogo	606,810	2,320	7,852
Aurora	1,170,710	24,720	12,389
Central City	2 3,880	3,880	3,636
Cave Springs	244,410	7,440	3,469
Duenweg	100,340	53,250	2 302
Carthage	61,290	1,540	935
Carl Junction	129,510	.....	1,748
Neck City	81,680	.....	1,144
Alba	160 830	....	2,071
Granby	203,880	22,740	2,300
Springfield	81,480	....	1,140
District total	9,859,880	1,221,150	$151,717
Total 34 weeks	316,452,570	37,302,030	$5,389,278

The sales were the largest since June 9th and surplus ore was entirely cleaned up. During the corresponding week last year top grade zinc ore sold for $45 per ton and lead at $27 per 1,000 lbs.; the lead sales were greater by 266,792 lbs., the zinc sales were less by 730,190 lbs., and the values less by $69,103. For the corresponding 34 weeks last year, the lead sales were less by 6,323,302 lbs., the zinc sales greater by 35,201,120 lbs. and the value greater by $2,182,693. As compared with the previous week, the lead sales were less by 37,210 lbs., the zinc sales greater by 1,914,720 lbs. and the value greater by $20,425.

The continued refusal of mine operators owning productive property to start their mills until the ore market assumes a better aspect or some agreement is reached with the ore buyers is seriously curtailing the production and is maintaining a fair price for ore in spite of unfavorable metal quotations. A combination of the producers of high-grade zinc ore has been formed outside of the regular producers' association, with the object of controlling the output of ore that assays 60% and over, and refusing to sell to the buyers unless all the members of the association receive a stated price. Some of the heaviest producers in the district are in the new combine, and it is said that a majority of the producers of top-grade ore will soon be members.

Joplin is to have the finest mineral display at the St. Louis Exposition next month ever sent out of the district. The display will be under the charge of Col. Pat. Leddy, of Joplin. Over two car-loads of specimens will be sent to St. Louis and they will be arranged in the form of a cave capable of holding 12 or 15 people, which will be lighted by electricity.

Two Johns.—This mine on the ground of the Continental Zinc and Lead Mining and Smelting Company at Joplin has been sold for $40,000. The mine was among the best producers on the Kohinoor tract of the company's ground, having made from 30 to 40 tons of high-grade zinc ore weekly. The mine was owned by F. S. Gobar, Martin, John and Jacob Klotz and John Kammerer, all of Joplin.

MONTANA.

Broadwater County.

Copper King.—C. B. Jacquemin, of Council Bluffs, Ia., and his partner, John Rothfus, of Radersburg, have given a bond and lease on this group near Townsend at the head of Keabing Gulch to some Butte men, who have started a 200-ft. shaft.

Vulture.—Chas. Murray, of White Sulphur Springs, and others have bonded this property in Park District to E. Norris and J. E. Kanouse, of Helena, for $18,000. A steam hoist will be put up and the ground explored.

Deer Lodge County.

Anaconda Copper Company.—Work on the new smelter is being pushed. About 500 graders are making excavations and doing grading. It is said there will be fully 12 miles of track around the new works. Temporary construction track has been laid and regular freight trains take supplies up the hill. A derrick is in place on the site of the smelter and a lot of material has been unloaded. It is understood that the main building will be 300 by 600 ft. and the railroad track will go right through the building. The water supply will come from Storm Lake and Silver Lake. It will take fully 2 years to complete this enterprise. The company has recently purchased all the ranches in the immediate vicinity of the new smelter, including Robert Morrill's ranch and iron mine, over which the company had been fighting him for a number of years.

Rock for the foundations of the concentrator building is being laid. With the force of men at work it is expected that 25 carloads of rock will be laid a day for the next month. Trains on the new tracks have hauled in structural steel to the sites of those buildings that are far enough along and the work of setting up the structure of the roaster building has begun. Among the many parts there are 21 pieces of steel, each of which weighs 5 tons.

Jefferson County.

Monarch.—J. H. Lynch, T. Driscoll, Daniel Drew and other Butte men are interested in this claim in the Little Blackfoot country. The ledge was recently cut at a depth of 238 ft. and, according to reports, is about 10 ft. wide, carrying good galena with copper, silver and gold values.

Nancy Hanks.—The water is about out of the mine and men are working underground. Messrs. Potter & Smith, who leased the old dump, are said to have secured about 300 tons of ore after screening that will go $25 per ton, and several tons of high grade ore.

Madison County.

Bedford.—At this group near Pony the work of retimbering the shafts and tunnels is still in progress, and the mine will soon be in good working condition.

Comstock.—This Pony mine, which has been closed down, is again running.

Galena.—This old mine at Sterling has been leased by P. V. Jackson, the owner, to Messrs. Mikesell, Clapp and Drake.

Red Bluff.—At this mine near Pony a new gallows frame that cost about $4,000 is finished and a blacksmith shop. As soon as sinking is suspended a cage will be put on. Preparations are going forward for the 60-ton concentrator.

Red Chief.—At this mine excavating for the foundation of a 30-ton concentrator is being pushed and the machinery is on the ground. The crusher will be a Griffin 3-roller centrifugal mill, with plates; the concentrators used will be Wilfley tables.

Madisonian.—This mine is running full time and employing about 50 men.

Wakefield Mining Company.—Wakefield, R. I., men are interested in this property at Mammoth, with H. D. Wilson manager. The company is exploring the ground and if the showing is as favorable as expected will erect a 20-stamp mill in the spring.

Silver Bow County.

Centennial.—A chattel mortgage on this mill site for $21,000 from Orrin B. Peck of Chicago to Franklin Farrel of Ansonia, Conn., has been filed. The property is a 10-stamp battery and all of its accompanying machinery located on the first mill site of Butte. The mill proposes to treat low-grade ores. A number of mechanic's liens were filed on the property, but these have been discharged.

Smokehouse.—A new electric hoist that was built at the Montana Iron Works has been installed at this exploration in Butte. This hoist will have a sinking capacity of 700 ft. and sinking from the 200 level has started. A new cage is on the ground and several ore cars. The owners of the property have just purchased the lot on which the hoist stands of Geoffrey Lavell for $22,500. The blasting will be done by electricity and 10-in. timbers will be used. The shaft will be sunk at least 500 ft. before any cross-cutting is done. It is the intention to sink a 3-compartment shaft to 1,000 ft. at some point on the Destroying Angel lode.

NEW MEXICO.

Dona Anna County.

Torpedo.—This mine, in the Organ Mountains, is having its capacity increased by a 9 by 10 Vulcan steam hoist, 2 60-H. P. tubular boilers, a boiler feed pump, a Smithwade sinking pump and other additions to the machinery. The material was bought in El Paso.

Grant County.

Bayard Smelting and Milling Company.—This company is continuing work on the Texas Mine at Hillsboro. The concentrating mill is running full time. The double compartment shaft is nearly completed to the 400-ft. level, and the work of sinking the remaining 100 ft. is expected to be finished by October 1st. The old shaft has been sunk an additional 50 ft. for experimental purposes. It is the intention of the management to sink the 2-compartment shaft to 2,000 ft. The 6 vanners, Huntington mill and other machinery ordered for the purpose of doubling the capacity of the mill are nearly installed.

Othello and Desdemona.—The Kansas City Smelting and Refining Company continues work at these properties at Cook's Peak. At present over 50 men are employed, and the output averages about 15 cars per month. The ore shipped is almost entirely lead carbonates.

Shamrock.—This claim, at Hillsboro, which is stated to show high grade copper ore, has been sold by Manning Bates and Childers to F. Preston Jones, who will develop it.

Lincoln County.

American Placer Mining Company.—This company is installing hydraulic machinery on its property at Jicarilla and is being hauled in from Carrizo Station. The El Paso foundry is to furnish 4 miles of pipe.

Rio Anita County.

New Mexico Gold and Copper Mining Company.—This company, composed of Milwaukee men, is putting in a large boiler and hoist preparatory to beginning active shipments from its property west of Tres Piedras. A shaft is down nearly 100 ft., with gold-copper ore in sight, it is said.

Sardine.—York Brothers, of Pueblo, who own this mine, near Tres Piedras, have a couple of car-loads of fine sacked ore ready for shipment and expect to put in new machinery.

Strawberry.—This mine near Tres Piedras, owned by a Wisconsin company, has just installed a new steam hoist and a full equipment of steam pumps.

Whale.—This mine in the Bromide District, which stopped work in February, has resumed and about 8 or 10 men are employed. The claims belong to Judge Andrew Royal and associates of Pueblo, Colo.

OREGON.

Grant County.

Red Boy.—Two shifts are working on the big shaft. The foundation for the shafthouse, ore bins, etc, are cut into the solid rock. The shaft, which is to explore the 2,000-ft. level, is to have 3 compartments and will be 7 by 17 ft. It is already down 30 ft., and will probably be completed in about 6 months. At a depth of about 500 ft. from the present lowest level another tunnel will be run to cut both the Monarch and the Red Boy ledges. The shafthouse is to be 200 by 45 ft. The house, engines, pumps, air compressors and all other equipments necessary have been purchased, but will not be installed for a month yet.

Cougar.—Manager Larkin of this mine says that tankage capacity will be increased so that the plant can handle 250 tons of ore daily. Five more tanks of 100 tons capacity each will be installed as soon as possible.

PENNSYLVANIA.

Anthracite Coal.

The anthracite operators, as was expected, did not meet the representatives of the United Mine Workers at Hazelton on August 27, having through the press, though not as a body, replied to the statement of grievances given out by the miners. The delegates of the United Mine Workers did not call a strike, but voted to wait till September and give the operators further time for an amicable agreement. They made the following demands:

The abolition of the company store system, a reduction in the price of powder to $1.50 per keg, the abolition of company doctors, abolition of the sliding scale now in practice in the Lehigh and Schuylkill regions, compliance with the semi-monthly pay law, and that all employees be paid in cash; that 2,240 lbs. shall constitute a ton in mining; that an advance of 20% be paid all classes of men now receiving less than $1.50 per day; that all classes of day labor now receiving $1.50 and not exceeding $1.75 shall receive 15% over present wages; that all day labor now receiving more than $1.75 shall be advanced 10%; that no miner shall have at any time more than one breast, gang or other class of work, and shall only get his legal share of cars.

Following are the scales adopted for the respective districts for inside work:

District No. 1.—Comprising upper Luzerne and Lackawanna, that 72½c. be paid per ton of 2,240 lbs., according to the thickness of the vein. Dockage to be allowed for rock, slate or boney in the coal, but a check weightman at the head of the breaker, with the company weightman, shall agree upon the amount of dockage.

District No. 7.—Comprising the Hazelton and upper Schuylkill region. Veins of 10 ft. in thickness or over 55c. be paid per ton; under 10 ft. and over 7, 60c.; under 7 ft., 71½c., and that the highest rate be paid in all places where 15 cars of coal cannot be mined with one keg of powder.

District No. 9.—Comprising Shamokin and part of Schuylkill region. An average increase of 8½% on contract work, and an average price of 59c. per ton, the minimum price of which shall be 35c., and the maximum 66c.

Bituminous Coal.

Kerr Coal Company.—This company, of Freeport, has purchased the coal rights of about 200 acres of land in Buffalo Township, Butler County, from John Sarver, for $10,000. The partners in the company are Isaac Guckenheimer, R. P. O'Brien, A. L. Strouse, George B. Findley and M. C. Kerr.

The Mansfield Coal and Coke Company.—This company has purchased all the remaining unde-

veloped coal underlying the leases of the old Gray & Bell Coal Company, of Pittsburg, near East Carnegie, the old mine opening being at Banksville. The property includes nearly 100 acres of thick-vein coal, mostly underlying the farms of Peter Portman and the Mellon heirs.

(From Our Special Correspondent.)

Eleven Scottdale capitalists who own 8,000 acres near Smithton on the Youghiogheny River have organized a company to begin operations for gas in that territory. The Scottdale men interested are J. R. Stauffer, John M. Stauffer, Clark Grazier, Benjamin F. Overholt, A. K. Stauffer, J. W. Wiley, J. D. Hill, David G. Morrow, M. S. Loucks, Enoch A. Humphries and John Anderson. John M. Stauffer is general manager, John Anderson assistant manager, and John W. Wiley secretary and treasurer. The men interested are bankers, coke operators and members of the pipe and steel combines. The Smithton men who are in the company are Samuel L. Hough and J. B. Sample. The company holds all the land from Jacob's Creek to Smithton and for 4 miles back from the river. If they strike gas a line will be laid to Scottdale to supply the rolling mill, pipe works and the town.

The big Blaine tract in Forward Township, Washington County, on the Monongahela River, has been sold to the Oliver Iron and Steel Company. Coal is to be shipped and coke will be manufactured extensively below Lock No. 3.

Ambleside Clay Mines.—Frank B. Hambrey has bought these fire clay mines near Dunbar from the Dunbar Fire Brick Company, and will begin shipping the clay at once. The purchase includes the mineral under 130 acres of ground of the best quality. The plant is well equipped.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Black Hills Porcelain Clay and Marble Company.—A carload of mica has been taken out of one of this company's mines on French Creek for shipments. Lithographic stone is being taken out at the quarries west of Custer.

Mayflower Mining and Milling Company.—This company proposes to develop the Mayflower Mine west of Custer. Incorporators are: F. C. N. Grogdon, and James B. Safford, Chicago; A. F. Faey, R. K. Preston and Thomas W. Delicate, of Custer. The company has purchased a steam hoist at Chicago and a shaft will be sunk 500 ft.

Lawrence County.

(From Our Special Correspondent.)

The Burlington Railway Company has announced that an excursion will be run on the new railroad between Denver and Deadwood September 15th. The 150 miles of new road between Alliance, Net and Brush, Colo., will be completed by September 10th. The road will save 500 miles in the journey between Denver and the Hills.

Copper Castle.—This group of 10 claims, owned by John Gray, Pat Smith, John Blatchford and William McLaughlin, of Deadwood, is about to be sold to Montana parties. A cross-cut tunnel 82 ft. has been run. The ore is high in silica.

Deadbroke.—This mine in Blacktail gulch is owned by R. M. Maloney, of Deadwood. The ore is first stamped and then the tailings are run wet into the cyanide solution. The ore free mills about $3 per ton, there being about $5 left in the tailings. The Shawmut Mining Company will use the same process at the Esmerelda.

Deadwood Gulch.—Iron ore is being shipped from the Seim Mine, near the wester border of the city of Deadwood, to the smelter. The Cook & Parker cyanide plant at the mouth of Blacktail Gulch is running steadily on cement ore from the Omega Mine, at Terraville. This ore has been treated in this plant for 90c. per ton. The Portland company is erecting a 50-ton cyanide plant at the Baltimore & Deadwood stamp mill which was purchased 2 weeks ago. The South Dakota Mining Company is running the 25-ton cyanide plant at Central City on ore from the mines at Portland. The Homestake Mining Company is getting the old Caledonia stamp mill at Terraville ready for work and it is stated that the Father DeSmet Mill will also be got ready before January 1st. The Gladiator Mining Company, of Des Moines, Ia., is running a tunnel on the Murray Group, 1 mile west of Central City. August Schenan, of Deadwood, has purchased some ground above the Gladiator Company and started a tunnel. The University Gold Mining Company is getting fair values from a drift on a 4-ft. vertical of quartz ore, on the Olds group, farther up the gulch. This company has recently located 100 acres of mining ground north of Custer. Colorado parties are about to work the Red Cloud Mine, owned by Joe Card, of Central City.

Homestake.—While excavating for a railway spur east of the Highland hoist, another vertical of free milling ore was encountered this week, which runs well. Teams are hauling the ore to the mills. The vein is about 20 ft. wide at the surface. This is the second vein opened by the company while excavating.

Monarch.—Regular shipments are made from this mine, owned by A. W. Coe, A. D. Wilson and John Mauss, of Deadwood. George Backman, of Deadwood, has the mine leased.

TENNESSEE.

Cumberland County.

Campbell Coal Company.—This company at Woody is pushing the work of erecting houses for miners and making coal openings. It is convinced that the coal is plentiful and of a fine quality, and will build a substantial mining town.

Crab Orchard Coal and Coke Company.—This company has commenced mining near Crossville and is now working in 33 in. of fine coking coal. Their mine is so situated that the empty cars can be placed in position by gravity and the loaded cars delivered to the Tennessee Central Railroad by the same means. This company will ship the first car-load of coal out of Crab Orchard.

VIRGINIA.

Virginia Coal, Iron and Coke Company.—This company is reported to have closed its furnaces at Bristol and Embreeville, Tenn. The Bristol, it is said, will be repaired and put in blast when the new railway to the Doe Mountain iron mines in Tennessee is completed. The only furnaces the company now has running are those at Roanoke, Pulaski and Buena Vista.

WASHINGTON.

Ferry County—Republic.

(From Our Special Correspondent.)

Butte & Boston.—The vertical shaft is down 245 ft. in hard ground. It is expected to intersect the vein at about 265 ft.

Chico.—After cross-cutting the vein on the 200-ft. level, the shaft was sunk to a depth of 317 ft., the last 17 ft. being for a sump. Thirty-five feet of the shaft went through the vein. On the 300-ft. level a drift is being run, assays from which run from $2 to $13 per ton, mostly in gold. The drift is now in 53 ft. and will be continued to 100 ft. before cross-cutting, unless richer quartz should be encountered. The property is equipped with a steam hoist and compressor. A No. 5 Cameron sinking pump has been installed which, by reaming the steam inlet from 1 in. to 1½ in. diameter and enlarging the outlet, admits much more steam than intended. Under 158 lbs. pressure on the water column the water is raised 317 ft. to the surface, with 50 lbs. of steam.

Nob Hill.—The vein has been cut on the lower tunnel level and a drift is going south on it, carrying from 3 to 6 ft. of milling quartz.

WISCONSIN.

Iron—Menominee Range.

Commonwealth.—This company will be obliged to close its mining operations at Commonwealth unless a new body of ore is found by another year. The Badger ore body will be cleaned up this year.

Florence.— This company has dropped 60 more miners from its payroll. The company has 150,000 tons of ore in stock at its mines at Florence, with no sales.

Pembina Creek Iron Mining Company.—This company is to develop a body of iron ore found by a log driver, Philip Dessircan, on the banks of Pembina Creek, 3 miles from Hawthorn. The officers are M. St. Peter, Norway, president; Fred Lavoie, Norway, vice-president; J. G. Kass, Norway, secretary and treasurer.

FOREIGN MINING NEWS.

AFRICA.

Rhodesia.

Gold Output.—The Rhodesian Chamber of Mines reports the output of gold for June as 6,185½ crude ounces. The chief producers were the Selukwe Gold Mining Company, which milled 5,430 tons that yielded 3,401¾ oz., or $2.08 per ton, and the Geelong, that milled 2,304 tons of rock which yielded 691¼ oz., or $5.31 per ton. The Premier Tati Monarch Reef Company milled 1,600 tons, which yielded 362 oz., or $3.86 per ton.

AUSTRALASIA.

New Zealand.

(From Our Special Correspondent.)

Dredging.—During the first 6 months of 1900 the published returns of the Southern dredges show that 26,875 oz. of gold were won by 32 dredges, or an average per dredge of nearly 840 oz.

During the 5 weeks ending July 29th the published returns show that 8,128 oz. of gold were won by 33 dredges, a weekly average of 49 oz. per dredge. Some very good returns were obtained, the largest being the record one of 1,234 oz. obtained in the first week of July by the Lady Ranfurly dredge from the banks of the Kawarau River near Cromwell. The Lady Ranfurly is one of the latest and best equipped dredges in Otago.

Mines Statement.—The annual statement of Minister of Mines J. McGowan states that a marked advance has been made during the year in all branches of mining, more especially in gold dredging. The minister anticipates a great increase in the output of gold when the dredges under construction are in operation.

For the year ending December 31st, 1899, the total mineral production of the colony is stated to be valued at £2,656,554 ($13,282,770), showing an increase of £496,893 ($2,484,465) over 1898.

The principal items were:

	Quantity.	Value.
Gold	738,896 oz.	£1,513,173 ($7,565,865)
Silver		40,838 (204,190)
Kauri gum	11,116 long tons	607,919 (3,039,595)
Coal	975,234 "	487,617 (2,438,085)
Other minerals	1,462 "	7,007 (35,035)

The total number of persons employed in mining during 1899 was 15,444, of whom 8,628 were in alluvial, hydraulic sluicing and dredging claims, 4,633 in quartz mines, and 2,153 in coal mines. The fatal accidents numbered 24, or 1.5 per thousand. The Kauri gum industry, gum diggers, are not included in the above. They probably number close on 5,000.

The statement announces that the Government, with a view to encouraging the manufacture of iron in New Zealand, are under certain conditions prepared to give a bonus of £1 per ton for the first 20,000 tons of iron smelted in the colony.

The other matters referred to in the report include the cyanide process, school of mines, geological exploration, quartz mining, alluvial mining, coal mining, roads and tracks, etc.

Gold Export.—The value of the gold exported from New Zealand during June was £151,853 ($759,265), an increase of £53,616 ($268,080) over the corresponding month of 1899. For the first 6 months of the year, however, the export of gold shows a decrease of £55,640 ($278,200), as compared with the corresponding period of 1899, the figures being £694,859 ($3,474,295) and £750,499 ($3,752,495). These figures do not tally with those published last month, and there is probably some mistake, but they are taken from the recently published annual statement of the Minister of Mines.

Hauraki Goldfield.—During the 4 weeks ending August 2d the value of this field's output was £48,332 ($241,660), a decrease of £2,380 ($11,900), as compared with the previous month. The principal producers were: Waihi, with £23,382 ($116,910) from 8,405 tons; Waitekauri, with £8,525 ($42,625) from 3,551 tons; N. Z. Crown, with £5,579 ($27,895) from 2,840 tons; N. Z. Talisman, with £2,450 ($12,250) from 873 tons; Kauri Freeholds, with £2,323 ($11,615) from 1,785 tons; May Queen, with £1,239 ($6,195) from 814 tons; Whangamata, with £1,165 ($5,825) from 763 tons.

West Coast Goldfield.—The principal producer on this field is the Progress Mines Company. The May return was £8,068 ($40,340) from 5,000 tons, and the June return £7,505 ($37,525) from 4,600 tons.

CANADA.

British Columbia.

Mineral Tax.—Owing to the fact that there is a deficit in the provincial treasury amounting to upward of $450,000, the Dunsmuir Government, among other things, has decided to double the present rate of taxation on the net production of mines in the province. This will make a 2% tax, against which mine owners are making a strong protest.

British Columbia—East Kootenay District.

(From Our Special Correspondent.)

Crow's Nest Coal Company.—This company has just purchased from the James Cooper Manufacturing Company a mining plant consisting of a straight line piston-inlet air-compressor, with 24 by 30 in. steam cylinders and 26½ by 30 in. air cylinder with 2 coal cutters and all accessories.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Rossland Ore Shipments.—For the 7 months and 23 days ending August 23d, the output of ore from Rossland mines shipped to smelters amounted to 108,400 tons.

Great Western.—The British America Corporation, which owns this group, also known as Le Roi No. 3, has contracted with the Rand Drill Company for a 40-drill compressor to be delivered in Rossland on or before January 17th, 1901. The plant will comprise a compound rope-driven Rand-Corliss air-compressor, and will cost $25,000. It is to be manufactured at Sherbrooke, Quebec, and is to be driven by steam or electricity. The compressor will be located on the Nickel Plate grounds, near the new shaft. Power will be supplied by the West Kootenay Power and Light Company.

Le Roi.—Bernard Macdonald, general manager, recently permitted me to inspect the workings. The 500-ft. level was first inspected through the Black Bear tunnel, which corresponds with the 250-ft. level. At about 500 ft.

from the mouth of the tunnel an electric 150 H. P. plant is stationed to raise men and materials from the workings below. Descending to the 500-ft. level J. M. Long, the mine foreman, pointed out the stopes of the old management, which had been worked to 1/3 of their contents. A large quantity of good shipping ore has been recorded; some of it was sent to the company's smelter and the remainder will be mined as facilities will permit. The drift along the main Le Roi vein on the 500-ft. level extends the entire length of the claim, at least 1,500 ft., and the west workings for some time have been in Black Bear ground. At the extreme west end of the drift an intrusive granite dike cuts off the vein, but a narrow vein of ore seemingly cuts into the dike. This dike is known as the Josie dike, and, according to Mr. Long, it has been cut through on Josie ground and ore found to the west of it. On the 600 and 700-ft. levels the workings correspond in most respects to the ore above.

The additional ore found extends in most cases from the 500-ft. level to the surface and down to the lower levels. Some of the newly discovered ore has been stoped and sent to the smelter, but the greater portion of it remains untouched. The mine is in a very satisfactory condition with regard to ore, ventilation, etc. The old shaft is down to the 900-ft. level and is still in use for certain purposes. The new shaft is within 50 ft. of the latter level, and this will shortly be reached, but the stoping on these lower levels has only been partially begun. The development of this mine has outlined a large ore reserve and much of this ore will be collected in bunkers in the lower levels and sent to the surface. When the new bunkers near the mouth of the Black Bear tunnel on the line of the Great Northern, having a capacity of 1,000 tons, are ready ore will be shipped not only from the Black Bear tunnel into these bunkers, but also by means of a tram connecting with the mouth of the shaft on the surface. It is not unlikely that before the snow flies the Le Roi will be sending to the smelters about 1,500 tons per day.

Mucker's Wages.—Recently a deputation from the Rossland Miner's Union waited on Messrs. Blackstock and Gooderain, representing the owners of the War Eagle, and asked for an increase of 20% in wages. These men now get $2.50 per day and they want $3. Mr. E. B. Kirby and Mr. Bernard MacDonald have since published a joint note to the effect that they fail to see anything in the situation to justify the increase.

Northport Smelter.—It is stated that the additions to the Northport Smelter will be ready about September 15th. A quantity of ore estimated at 40,000 tons was accumulated in the smelter yard and on the dumps at Red Mountain.

Pyritic Smelter.—Andrew Laidlaw, of the Standard Copper Company of Quebec has contracted for a smelter site on Boundary Creek, about 3 miles from Greenwood. The Quebec Company recently floated 2 subsidiary companies—the Quebec Copper Company, which owns the Marguerite Group in Deadwood Camp Boundary District, and the Standard Copper Company, which is about to build a new pyritic smelter near Greenwood.

British Columbia—Yale District.

(From Our Special Correspondent.)

Brandon & Golden Brown.—The management of this mine at Greenwood has so far sent about 85 carloads of ore to the smelters, but the net smelter returns have not been furnished for publication.

Grand Forks Smelter.—The ores now being heated are from the Ironside, Knob Hill and City of Paris mines. The officers now in charge of this smelter are S. H. C. Miner, president; Jay P. Graves, general manager; G. W. Wooster, secretary of the smelter; H. A. Galer, assistant treasurer; A. B. W. Hodges, superintendent; Mayor Lloyd A. Manly and H. S. Mackinnon, directors. The smelter has a daily capacity of 500 tons and there is ample water power. The plant consists of 2 double-decked steel jacketed furnaces 160 by 44 in. The stack is 150 ft. high. The blower-room is 50 by 58 ft., with 3 blowers to each furnace, each driven by a 58-H. P. variable speed Westinghouse induction motor belted to the blower. The main sample building is 64 by 70 ft. and has bins on three sides. The matte is to be shipped after being brought up to 45 or 50% copper, to Eastern refineries for treatment. When the plant is enlarged a complete matte converting plant will be added, as well as a roasting plant. About 50% of some of the ores will be roasted in file. The technical work is in charge of A. B. W. Hodges, metallurgist. The rate fixed for customs work is $5.50 per ton, but in large quantities probably not more than $4.50, the same as the Le Roi.

Ontario—Rainy Lake District.

(From Our Special Correspondent.)

Canadian Mines Development Company.—This company will reopen the second shaft at the Foley, which has been idle since the shutdown some years ago. The mine is looking better and the company is adding men. The second shaft is on the Bonanza vein and is down more than 400 ft.

Zenith.—At this zinc mine a few men have been employed during the summer getting out ore which will be shipped during the coming winter, when the lakes are frozen into roads. The mine is 14 miles from the Canadian Pacific Railway. Very little mining is required. Other zinc properties nearby are to be opened the coming season by Toronto and Buffalo parties.

MEXICO.

(From Our Special Correspondent.)

San Jorges Bay & Eastern Railroad Company.—This company is to construct a railroad from the property of the Los Pincos Mining and Milling Company, to the Bay of Jorges, on the Gulf of California. All the concessions have been granted by the Mexican Government. The officers of the company are J. H. Holmes, president, Pasadena, Cal.; J. D. Thompson, Los Angeles, Cal.; W. R. Seats, Frank C. Bolt, D. J. McPherson and George C. Holden, all of Pasadena, Cal.

Durango.

Avino.—It is stated that the amalgamation of these mines with the Durango Copper Company is assured, the agreement having been ratified in London. This is one of the most important mining deals in northern Mexico for some years.

Mexico.

El Oro Mining and Railway Company.—This London company succeeds the American Mining Company, in which J. B. Haggin was a large shareholder, in the control of the El Moro Mine at Tultenango on the Mexican Central Railway. The company's railway extends from Tultenango 37 km. to where the company opens extensive timber lands. The company's capital is £5,000,000 in 1,000,000 £1 shares. The company has declared its first dividend.

COAL TRADE REVIEW.

New York. Sept. 1.

Anthracite.

Though autumn is approaching and though the labor question at the mines is liable to give trouble to producers, the market for hard coal in the East does not show the improvement that might be expected. The movement from the mines, however, is heavy. The collieries are busier than since last winter and a lot of coal is evidently going into storage. Somebody is evidently preparing for a raise in prices if the miners stop work. In the west there is not much increase in demand in Chicago territory or at the head of the Lakes, though the market is stronger. This strength is particularly marked at the lower lake ports. Receipts of coal at Duluth are rather light and the movement from docks is on the increase. Prices are everywhere well-maintained.

There is, perhaps, a certain mixture of politics in the present situation over anthracite miners' wages, and the outcome is hard to foretell. The young men and boys are more easily lead to talk strike than the older men, who know what a prolonged strike means, but if the young men and boys strike, the collieries will have to stop work. Happily, the storekeepers of the anthracite region and other business men who know what a loss they will meet if all work stops at the mines are using their influence to avert a strike. The situation is serious and threatening, but matters may be adjusted.

The list prices for free-burning white ash coal f. o. b. New York are: Egg, $3.75; stove, $4; nut, $4.

Notes of the Week.

The exports of coal from the United States in the 7 months ending July 31st amounted to 992,481 tons anthracite and 3,609,274 tons bituminous, against 887,431 tons and 2,118,651 tons respectively last year. The total exports were 4,601,755 tons, against 3,006,082 tons in 1899, showing an increase of 1,595,663 tons, or 34.7%, in 1900. There were also exported during this period 240,253 tons of coke, against 150,989 tons in 1899.

Bituminous.

There is considerable demand for soft coal from points along the Atlantic seaboard. The embargo that the Pennsylvania Railroad put on all shipments lasted about a week for all shippers and presumably longer for some of the worst offenders who had been holding up coal at tidewater. The present demand is chiefly for the better grades, as the lower grades seem to be in very good supply. There is a scarcity of vessels at the shipping ports, caused partly by light and baffling winds, and ocean freight rates have advanced 20c. to 25c. The foreign trade still shows a considerable demand, which is limited chiefly by ocean freight rates and vessel supply.

The far East shows a very strong demand for the better coals. Consignees worry agents, who in turn are after shippers, thus sending up coastwise freights. Along the Sound trade is easier, though more of the better grades would be taken if offered. New York Harbor trade is fairly active, but consumers are calling loudly for coal. All-rail trade is slow and there has been some cancellation and suspension of orders. Transportation from mines to tide is slow, about a week being taken. Car supply at the collieries is fairly good.

In the coastwise vessel market vessels are in poor supply and shippers are excited. Ocean freight rates are strong at the quoted figures, with prospects of an advance. We quote from Philadelphia as follows: Boston, Salem and Portland, $1; Providence, 99c.; Wareham, Bath and Lynn, $1.10; Newburyport, $1.15; Portsmouth, $1@$1.05; Bangor, $1.15@$1.20. From the farther lower ports rates are about 10c. higher.

It is hard to give any open market prices on the better grades of coal. Clearfield is about $2.50 at Philadelphia. The high-grade coals are worth $2.50@$2.60 at the lower ports; that is, if they can be had on outside orders.

Birmingham, Ala. Aug. 27.

(From Our Special Correspondent.)

The coal trade in Alabama holds its own. The production continues very large, with a demand for all the coal that is mined. The miners, though their wages during August were reduced, have been doing their best to get out coal. Two fatal accidents, with three dead therefrom occurred in mines in Alabama during the last ten days. A fairly good price is still obtained. W. E. Leake, of the Alabama Block Coal Company, states that there have been 135,000 tons of Alabama coal shipped down the Mississippi River from Walker County since February 1st, under contract secured by the Alabama Block Coal Company's offices in New Orleans and from B. D. Wood & Sons, large coal dealers in New Orleans. He states further that before the end of the year no less than 100,000 tons of coal more will be needed in the Mississippi River trade. The prospects for next year are very bright and between 250,000 and 300,000 tons at least will be sold. The Sloss-Sheffield Steel and Iron Company propose great development at their America Mines in Walker County, it being intended to open several mines and build a number of coke ovens there. Chief Engineer Priestly Toulmin, of the Sloss Company, is giving the company's coal and coke development considerable personal attention, and it is believed that before the end of another 6 months the company's production will be increased about 5 to 10%.

Chicago. Aug. 28.

(From Our Special Correspondent.)

Coal.—The anthracite market is2 dull and there are no indications of an improvement. But little coal is being sold by companies' agents, and it is evident that they are playing a waiting game and in the meantime keep preventing prices from sagging under present circular. It is doubtless a hard task for them to maintain prices, the uncertainty keeping about everyone out of the market for coal beyond immediate wants. Receipts by lake continue very small and some tall work will have to be done between this and close of navigation to bring them up to winter requirements. Circular prices are $5.25 for grate and $5.50 for egg, stove and chestnut. Bituminous coal is being bought moderately by manufacturing concerns and the railroads. There is as yet a great inclination to keep away from market for anything but present requirements, and in consequence the trade is very dull and prices are depressed. The tracks and yards are almost filled to capacity and the mines are shipping without discretion. The usual inquiry for fall supplies is small as yet, but dealers expect some good buying ere long. Prices are lower.

Coke has not improved in demand. Prices are fairly firm.

Cleveland, O. Aug. 29.

(From Our Special Correspondent.)

The same conditions prevail now as were patent several weeks ago. A few cargoes are being placed now and then with wild boats, but the bulk is on contract tonnage. The outlook was brightened a little this week. One day the marine men spoke of a slightly increased demand for wild boats, but it was not appreciable so that it created no great stir. The fact that it was light is shown by the further fact that coincident with this came the report that the Portage rate had been lowered to 30c., thereby putting all ports in the upper lake region on the same basis. The better demand came from Lake Michigan. It seems, however, that the shippers away from the upper lake docks have been able to persuade the railroads there to move their coal, thus making room for more stuff from the lower lake ports. The movement from the mines to the lakes continues uninterrupted. The shippers have all of the coal at their command, which they could well send up the lakes had they the space in which to put it.

Philadelphia, Pa. Aug. 31.
(From Our Special Correspondent.)

Bituminous Coal.—Our ship brokers are driven to the wall, for vessels and freights are making shipments almost impossible. The demand is simply beyond facilities. The Pennsylvania Railroad through the Berwind, White Company and its 100,000 lbs. coal cars is taking the better part of the coal trade. The advance in vessel rates of 5s. has scared exporters and with the demurrage charges they become apprehensive if coal does not arrive on time. A ticker agency to-day announces the Pennsylvania Railroad coal crowd has arranged for the building of 3 vessels to carry coal abroad, and the same authority says the Carnegie people have determined on the construction of 2 ships to carry their freight to foreign markets.

Pittsburg. Aug. 29.
(From Our Special Correspondent.)

Coal.—There is no change in the situation. Nearly all of the railroad coal mines are in operation, but most of the river mines are idle, as navigation has been suspended. The tonnage ready for shipment to the Southern markets is unusually large. There is talk of an advance in prices, but no official information as to the probable rates for the Fall trade has yet been given out by the two coal combinations. The idleness of many of the rolling mills has resulted in a curtailment of production at many of the railroad mines.

Connellsville Coke.—The putting out of blast of nearly all of the furnaces of the Bessemer Furnace Association has caused a big reduction in the price of coke. This week a number of contracts were taken for furnace coke at $1.50 a ton, while the price of foundry coke ruled at about $2. Standard Connellsville coke is quoted at $2 for furnace and $2.50 for foundry, but no sales are recorded at those prices. A large producer said to-day that he believed rather than shut down producers would be willing to take orders as low as $1.25 a ton for furnace coke, but that would be the bottom figure. The production in the Connellsville region was lower last week than the previous week, while the shipments were a trifle heavier. The production was 141,753 tons, a decrease of 2,227 tons compared with the previous week. The shipments aggregated 7,589 cars, distributed as follows: To Pittsburg and river tipples, 2,777 cars; to points west of Pittsburg, 3,325 cars; to points east of Connellsville, 1,487 cars. This was an increase over the previous week of 35 cars.

SLATE TRADE REVIEW.

New York. Aug. 31.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries in carload lots, is given below:

Size, Inches	Monson or Br'nville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	6.50	3 50	3.00	3.25	3.10	5.10	3.15		.....
24 x 12	6.60	3 50	4.00	3 25	3 10	5.25	3.15	3.75	.....
22 x 12	6 60	3.50	3 25	3 50	3 25	5.25	3 15	3 75	.....
22 x 11	6 50	3.75	3.25	3 50	3 25	5 25	3 15	4.00	.....
20 x 12	6 90	3.75	....	3 50	3 25	5 25	3 15	3 75	.....
20 x 11	6.80	....	....	3.75	3.50	5.25	3.15	....	.....
20 x 10	6.80	4 25	3.50	3.75	3.50	5.35	3.15	4 25	10.50
18 x 12	6.80	3 75	..	3.50	3.25	5.25	3.15	3.50	.....
18 x 11	7.00	....	....	....	....	....	3.15	3.75	.....
18 x 10	7.00	4.25	3.50	3.75	3.50	5.35	3.15	4.00	10.50
18 x 9	7.00	4.50	3.50	3.75	3.50	5.35	3 15	4.25	10.50
16 x 12	6.80	3.75	....	3.50	3.25	....	2.95	3.50	.....
16 x 10	7.00	4.25	3.50	3.75	3.50	5 25	2.95	4.00	10.50
16 x 9	7.00	4.25	....	3 75	3.50	5.35	2.95	4.25	10.50
16 x 8	7 00	4 50	3.50	3.75	3.50	5.35	2.95	4.25	10.50
14 x 10	6 60	3.75	3.25	3.25	3.25	5 25	2.85	3.75	10.50
14 x 9	6 50	....	....	....	....	....	2.85	3 75	10.50
14 x 8	6 60	3.75	3.25	3.25	3.10	5.10	2.85	4.25	10.50
14 x 7	6 40	3.75	3.25	3 25	3.10	5.10	2.60	4.25	10.50
12 x 10	5.75	....	....	....	....	....	2.60	3.25	.....
12 x 9	5.60	....	....	....	....	....	2.60	3.25	.....
12 x 8	5.50	3.50	....	3.00	2.80	4 85	2.60	3.50	9.00
12 x 7	5.00	3.25	....	3.00	2.80	4.85	2.50	3.50	9 00
12 x 6	4.80	3.25	....	3 00	2.80	4.75	2.50	3 50	8.50

A square of slate is 100 sq ft as laid on the roof.

The exports of slate from the United States in the 7 months ending July 31st are compiled by us as below:

	Roofing. Squares.	Roofing. Value.	Mfrs. Value.
January	14,151	$72,193	$4,489
February	12,062	60,312	6,707
March	6,249	31,245	10,971
April	6,368	32,447	18,887
May	8,809	47,567	17,595
June	10,803	59,951	24,442
July	17,611	88,057	6,733
Totals	76,063	$391,582	$90,824
Total, 1899	156,360	697,964	90,228

The total exports during this period were valued at $482,406, as against $788,192 last year, showing a decrease of $305,786, or 39% in 1900, all in roofing slate.

Freight rates are strong and advancing.

The market continues quiet in most lines, and prices are as unsettled as they have been, notwithstanding the efforts of leading quarrying interests to keep them as scheduled.

The shipments of slate from Slatington and Walnutport, Pa., for the week ending August 23d were 6,265 squares roofing, 700 cases school slates, and 1,148 crates of blackboards.

IRON MARKET REVIEW.

NEW YORK, Aug. 31, 1900

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Sept. 1,1899. F'ces.	Sept. 1,1899. Tons.	Aug. 31, 1900. F'ces.	Aug. 31, 1900. Tons.	From Jan.,'99. Tons.	From Jan.,'00. Tons.
An' racite & Coke.	222	262,400	220	239,575	8,554,778	9,737,515
Charcoal.	22	6,275	20	5,375	189,880	242,342
Totals.	244	268,675	240	244,950	8,744,658	9,979,857

The wage-scale disputes continue to vex sheet interests, and though several conferences have recently been held nothing definite has yet been done. Consequently the production of such articles as bars and tin plate are being restricted. In bars, especially, stocks show a large decrease, and the improved demand has stiffened prices greatly.

Foundry iron in the Pittsburg District has sold at lower prices. Billets are inactive, being oversold. Plates are moving in a good way, and some large orders are on book for export.

Iron ore production continues very heavy this year, owing chiefly to the extensive explorations of a few large interests.

Birmingham, Ala Aug. 27.
(From Our Special Correspondent.)

Appearances do not show any improvement in the pig iron market. Pig is still accumulating and efforts are being made to reduce the production under the guise of furnaces needing repairs. During the past week the Republic Iron and Steel Company blew out one of its Thomas furnaces, cutting down the production between 175 and 200 tons daily. It is stated that the furnace will be thoroughly modernized.

The railroads have declined to make any concessions to the furnacemen for a reduction in rates to the coast and the freight will remain as it has been for the last 5 or 6 months. The furnacemen claimed that they could get a large amount of export business and move off the greater part of the accumulation on their yards but the railroads after deliberation declined to grant the request, claiming that the time was inopportune and that if a reduction was granted no more business was promised, and that the scarcity of ship room to foreign markets is responsible for iron being stored here. It is further claimed that no less than 82,000 tons of pig iron for export movement have been booked already.

It is estimated that not less than 100,000 tons are on the yards of the various companies, but there was a little business during the past week, one of the smaller concerns selling 1,000 tons for export.

No iron is being placed in the storage warrant yards. Repairs on furnaces are rushed. The Sloss-Sheffield Steel and Iron Company are working on 1, the Tennesee Company on 2, the Republic Iron and Steel Company on 1, the Alabama Consolidated Coal and Iron Company on 1, the Trussville Furnace, Mining and Manufacturing Company on 1.

The Dimmick pipe plant at North Birmingham is preparing for full operations. Two pits are running and before the end of another 3 weeks the other pits will be.

The rolling mills are still quiet. The Bessemer mills of the Tennessee Coal, Iron and Railroad Company are running, while the Ensley steel plant has 3 or its 10 open-heath furnaces in blast. The Hood Machine and Foundry Company has shipped to Mexico City a carload of machinery and castings. Other work is being done for distant points.

The following quotations are given for pig iron: No. 1, foundry, $12.50@$13; No. 2, $11.50@$12.50; No. 3, $11@$11.50; No. 4, $10.50@$11; gray forge, $10@10.50; No. 1, soft, $12.50@$13; No. 2, $11.50@$12.50.

Buffalo. Aug. 29.
(Special Report of Rogers, Brown & Co.)

We are pleased to note a decided increase in the volume of business. The market may be said to be moderately active in the placing of contracts. The hand to mouth method has disappeared and in its place is a policy of ordering for several months ahead with deliveries to begin at once. One furnace in this field reports having booked more tonnage since August 1st than during the entire first 7 months of this year. These are all favorable indications which give the pig iron trade encouragement to think the end of a depressed and drooping market is in sight. Prices remain as recently quoted, but with less disposition toward concessions. We quote below on the cash basis, f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $18.25; No. 2, $17.25; Southern soft, No. 1, $18.25; No. 2, $18.50; Lake Superior charcoal, $19; coke malleable, $17.

Cleveland, O. Aug. 29.
(From Our Special Correspondent.)

Iron Ore.—The movement down the lakes is still confined to contract tonnage. Until now this has been untrammeled by any labor difficulties, but the prospects are for a serious tie-up of the lower lake docks which may effect a change that will have an influence on the market for the remainder of the year. The ore-handlers in the port of Cleveland being dissatisfied as to the condition of the cargo of the steamer "Murphy," struck for higher wages. In refusing to work before their differences had been arbitrated they violated one of the clauses of the agreement between the International Longshoremen's Union and the dock managers and by insisting on their point being granted, which was an increase of $2,000 in compensation for the removal of one cargo, they threaten to tie up all of the docks on the south shore of Lake Erie. Before such a tangle can be straightened out it is likely that the movement of contract boats will be so hampered that the owners of them will have to go on the market to bid for wild tonnage. The situation promises now to alter the demands for tonnage in all trades during the late fall. It is hardly expected that an increase in the demand for wild ore boats will arise from any other condition. Just now not enough wild ore is being moved to warrant a quotation of the freight market. The last charters were made at 75c. from the head of the lake.

Pig Iron.—There is nothing doing in this market, at least for spot delivery. The inquiries for the last quarter are heavier than they have been, and some large sales, ranging about 1,000 tons or more for delivery after the election, are being made. Sales for the future and for immediate use are being made on the basis of $15.50 for No. 1 foundry and $15 for No. 2 foundry, Valley Furnace. Furnacemen are not anxious to do much business for the future at these figures, as they realize that it is not on a paying basis, especially with coke at $2.25 and with ore at prevailing prices. Nothing is being done in Bessemer. The furnaces which are to go out of blast September 1st, for 60 days, are now blowing out, hence the sales of the near future will have to be from the stock piles.

Finished Materials.—This week has seen a stiffening of the prices of plates and bars. The former is now quoted at 1.15c. as a minimum, with 1.20c. as a possibility, and the latter has 1.15c. as the minimum also. The advance in both is due to some big business that is showing up, and that the mills are about filled up to the limit of their capacity with orders on stuff sold at a lower price. The increased demand for plates is due to orders with the American Ship Building Company for 18 new steel steamers of the larger size. So far 20,000 tons of plate have been sold recently and as much as 10,000 tons is in sight to be sold this week. There is a heavier demand for shapes, with the market strong. Beams and channels are selling at association prices, as are angles. This week 1,000 tons of bridge material was sold. There is also a better demand for billets at $18.

Old Iron.—Speculators are finding it almost impossible to get hold of any stuff. Those who have scrap are holding on, expecting when the mills start to get a better price than the market now affords. Activity continues to be in machine cast and stove cast at $12 and $7 respectively.

Philadelphia. Aug. 31.
(From Our Special Correspondent.)

The iron trade has not yet reached the point where big ordering is to be expected.

Pig Iron.—Forge iron makers to-day reported more inquiries for mill iron than for 3 months. Business is too unsettled for much dealing at any price. The fact that the wage scales is unsettled is disturbing. Our people believe there is a greater unwillingness among the workmen to yield than the newspapers say, but Friday's meeting at Pittsburg will let in some light. Quite a number of interior blast furnaces have blown out forever. There is less disposition to sell for remote delivery. Foundrymen are heard of as buying, but not in large quantities. No. 1 Foundry is not far from $16.75@$17.50; No. 2, $14.16; No. 2 plain, $15.75; mill irons, $14@$15; Bessemer, $15.50, and low phosphorus, $24.

Billets.—Billets are being loaded here for shipment to England and it is understood that if the pending requests of steel makers be granted the exports not only of billets but other forms of crude and finished material will be materially increased. Prices at mill, it is rumored here to-day, have been shaded $1, but there is no confirmation.

Skelp.—Our Eastern skelp mills are making all the iron they can.

Merchant Steel.—The consumptive requirements have been restricted all summer, but direct inquiries here from intending buyers shows there will be a continued cautious buying, as prices are not likely to fluctuate much.

Sheets.—The revolutionary changes in sheet mills West is noted. Representatives of Eastern sheet mills say business will be all right by the middle of September. Store sales are light and mill orders are moderate.

Plates.—Plates were shaded this week in making prices on 2 or 3 good-sized lots asked for, but despite these reductions orders are small. Our best local authority on plates says a large amount of business has been heard of and may be reduced to orders any time.

Structural Material.—There are those who claim they have wind of another drop of $4, but patient inquiry fails to locate the people who talk this way. The structural people say they will not reduce again. The amount of business actually placed this week is light, but there is a large amount in sight. There will soon be some ships started to carry coal abroad. Some fine jobs will be let in September for winter office building work. The demand for structural material, according to a Pennsylvania steel mill official, will crowd demand, if export facilities are what is wanted.

Steel Rails.—There is something going on among the railway people and the steel makers which cannot be got at, but the outcome must be, and will be, a very sharp reduction in prices and a rush of large orders which will take steel rail capacity out of the market for months.

Pittsburg. Aug. 29.

(From Our Special Correspondent.)

Business is good in finished material, but in pig iron and billets the market is oversold. There have been no transactions in pig iron during the week. Despite the closing of nearly all the furnaces of the Bessemer Furnace Association, the rate of production is still beyond the tonnage that is actually being shipped for finished material. Business is not moving at present to warrant increased production of pig iron, and unsatisfactory conditions in this line are likely to continue for some time. The price has dropped $1 a ton during the week and although no sales of any consequence have been made pig iron can be bought at $15 a ton delivered in Pittsburg. Foundry iron is lower, small sales having been made during the week at $14. Bessemer steel billets range from $18 to $19. Several small lots were sold at the last named figure and one sale of 2,000 tons is recorded at $18. Open-hearth billets are quoted at $20@$21, with but little demand. There has been a remarkable increase in the demand for steel bars, and prices are stiffer. On Monday it was reported that a sale had been made at 1.25c., which was an advance of $3 a ton during the week. While this cannot be considered the actual price at present, it is believed that a higher rate will rule before another month. The idleness of the bar mills owned by the Republic Iron and Steel Company is responsible for a decrease in stocks, and unless an adjustment of the wage scale is soon made there is likely to be a still further advance in prices. Tank plates are also firmer and nothing less than 1.10c. can be done. The prices for structural material remain firm and there is no indication of a change this year. Manufacturers insist that bottom prices have been fixed and will rule on all contracts taken for next year's delivery. The secret ballot on the iron wage scale has been received at the headquarters of the Amalgamated Association and will be counted this week. The result of this vote will determine the operation of the union rolling mills of the country. If the result shows that two-thirds of the members are in favor of insisting on the scale prepared at the Indianapolis convention it will mean a strike at all the mills of the Republic Iron and Steel Company, the American Steel Hoop Company and other concerns that are under the jurisdiction of the Amalgamated Association. Unofficial reports have been received here that indicate an almost overwhelming vote in favor of the original demand. The officials, however, refuse to confirm or deny these reports. If correct, it means that the mills will remain idle for an indefinite period or that the concerns interested will agree to the wage scale demand. There seems to be no doubt but that the tin plate wage scale will be adjusted this week. Arrangements were made today for a conference on Friday to be held in this city. There are only two trifling clauses in the scale in dispute and it is believed that they can be agreed upon when the conference committees get together again. It is stated to-day that all the tin plate mills in the country will be in operation before the middle of September.

Pig Iron.—There have been no sales of Bessemer pig iron this week, and the nominal quotation is $15@$15.50, Pittsburg. Gray forge is quoted at $13.50@$14, and No. 2 foundry iron at $14@$14.50. Several small sales of foundry iron are recorded this week.

Steel.—The demand for Bessemer steel billets is somewhat better this week. Sales were made at prices ranging from $18@$19. Open-hearth billets are quoted at $20@$21. Steel bars range from 1.10@1.25c. The minimum price for tank plate is 1.10c.

Sheets.—The sheet market is a puzzle. The American Sheet Steel Company continues to quote 3.20c. for No. 28, and 3.10c. for No. 27 gauge, but sales at less than 3c. have been recorded this week. It is said that concerns outside of the combination are selling No. 27 at 2.80c. and No. 28 at 2.90c.

Ferro-manganese.—The price remains unchanged, $85 for 80% domestic.

New York. Sept 1.

Pig Iron.—Sales are of fair volume and inquiries are increasing. Some pretty low prices are reported. We quote for Northern irons, tidewater delivery: No. 1 X foundry, $16.75@$17.50; No. 2 X, $15.75@$16.50; No. 1 plain, $16.50@$17.50; No. 2 plain, $15.25@$15.75; gray forge, $15@$15.75. For Southern irons on dock, New York: No. 1 foundry, $17.25@$17.50; No. 2, $15.75@$16; No. 3, $14.75@$15.

Bar Iron and Steel.—The market is still weak. We quote common bars at 1.20@1.25c. for large lots on dock; refined bars, 1.35c.; soft steel bars, 1.20c.

Plates.—Prices are no better yet; demand is fair. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 1.25@1.30c.; tank, 3/16-in., 1.30@1.40c.; shell, 1.40@1.45c.; flange, 1.60c.; marine, 2.10c.; universals, 1.30c.

Steel Rails and Rail Fastenings.—The local market is dull and there are reports of sales at less than regular prices, but $35 is still quoted. We continue to quote standard sections $35 f. o. b. Eastern mills. Smaller rails are quoted: 12-lb., $40; 16-lb., $40; 20-lb., $40; 30-lb. to 40-lb., $38; 40-lb. to standard, $36, with the usual advance for small orders. Splice bars are 1.50@1.55c.; spikes, 1.80@1.85c.; fish plates, 1.50c.; bolts, 2.30@2.50c.

Structural Material.—The cut in prices has probably affected demand, which shows improvement. The new prices for large lots at tidewater are: Beams, 1.65c.; channels, 1.65c.; angles, 1.30c.; tees, 1.70c.; zees, 1.65c.

METAL MARKET.

New York. Aug. 31.

Gold and Silver.

Gold and Silver Exports and Imports

At all United States ports in July and year.

Metal.	July. 1899.	July. 1900.	Year. 1899.	Year. 1900.
GOLD.				
Exports	$2,606,457	$3,269,159	$30,159,781	$33,709,841
Imports	2,895,469	4,944,764	26,283,116	21,570,631
Excess	I. $289,012	I. $1,675,605	E. $3,876,665	E. $12,139,210
SILVER.				
Exports	4,003,472	4,913 658	31,123,420	35,284,144
Imports	2,731,796	3,311,033	17,168,511	22,160,121
Excess	E. $1,271,676	E. $1,602,625	E. $13,954,909	E. $13,124,023

This statement includes the exports and imports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending August 30th, 1900, and for years from January 1st, 1900, 1899, 1898, 1897.

Period.	Gold. Exports.	Gold. Imports.	Silver. Exports.	Silver. Imports	Total Excess, Exp. or Imp.
We'k	$11,490	$21,082	$723,510	$475,835	E. $238,083
1900..	36,380,455	1,706,213	26,026,894	3,391,811	E. 57,309,325
1899..	11,550,543	8,139,906	18,227,723	2,306,661	E. 19,331,769
1898..	975,427	72,372,134	22,110,067	2,039,985	I. 51,326,625
1897..	28,059,616	3,974,093	23,729,551	1,461,553	E. 49,3 3,551

The gold exports this week were to the West Indies and the silver to London. The imports were from Central and South America and the West Indies.

The United States Assay Office in New York reports the total receipts of silver at 57,000 oz. for the week. Total since January 1st, 3,269,000 oz.

Average Prices of Silver per oz. Troy.

Month.	1900. Lond'n Pence.	1900. N. Y. Cents.	1899. Lond'n Pence.	1899. N. Y. Cents.	1898 Lond'n Pence.	1898 N. Y. Cents.
January...	27.30	59.30	27.42	59.36	26.29	56.77
February..	27.49	59 76	27.44	59.42	25.89	56 07
March.....	27.59	59.81	27.48	59.64	25.47	54.90
April	27.41	59.59	27.65	60.10	25.95	56.02
May.....	27.56	59.96	28.15	61.23	26.31	56.98
June	27.81	60.42	27 77	60.43	27.04	58.61
July..	28.23	61.25	27 71	60 26	27.32	59.06
August....	.....	....	27.62	60.00	27 48	59.54
September	.....	.....	27 15	58.89	28.05	60.68
October ..	.....	.....	26.70	57.98	27.90	60.42
November	.....	.....	27 02	58.67	27.93	60.60
December.	....	.....	27.21	58.99	27.45	59.42
Year....	.....	.....	27.44	59.58	2.76	53.29

The New York prices are per fine ounce; the London quotation is per standard ounce, 925 fine.

Prices of Foreign Coins.

	Bid.	Asked.
Mexican dollars	$ .48¼	$ .49½
Peruvian soles and Chilean pesos	.44	.46½
Victoria sovereigns	4.86½	4.88
Twenty francs	3.87	3.90
Twenty marks	4.74	4.80
Spanish 25 pesetas	4 78	4.82

Imports and Exports of Metals.

Port.	Week, Aug. 29. Expts.	Week, Aug. 29. Impts.	Year 1900. Expts.	Year 1900. Impts.
***New York.**				
Aluminum.....long tons	3	**1	97	58
Antimony ore... " "	.....	**76	.....	1,947
" regulus.. " "	.....	**45	.....	780
Chrome ore..... " "	.....	.....	.....	1,501
Copper, fine..... " "	1,216	173	73,007	14,502
" matte.. " "	321	.....	3,125	167
" ore..... " "	.....	.....	.....	12,617
" ash..... " "	.....	.....	.....	93
Ferro-Chrome.. " "	.....	.....	.....	31
Ferro-mangan'se " "	.....	.....	.....	407
Iron ore..... " "	.....	.....	.....	17,526
" pig, bar, rod " "	331	**25	9,136	5,218
" pipe..... " "	487	.....	10,418	157
" plates, sheets " "	.....	.....	889	18
Lead..... " "	1,313	860	51,233	45,494
" ore.. " "	.....	.....	.....	9,700
" dross..... " "	.....	.....	.....	24
Manganese, ore. " "	.....	**50	.....	9,336
Metals, old, scrap " "	253	.....	2,684	5,155
Composition... " "	210	.....	1,471	185
Nails..... " "	341	.....	15,361	.....
Nickel " "	52	.....	1,501	108
" ore, matte " "	.....	.....	.....	5,393
§Railr'd material " "	202	**85	3,670	3,023
Rails, old..... " "	420	.....	3,707	518
Spiegeleisen..... " "	.....	**523	.....	2,712
Steel bars, plates " "	1,687	**516	21,495	12,465
" rails..... " "	1,161	.....	37 251	18
" wire..... " "	686	.....	18,189	23
" not speci'd " "	337	**27	6,810	2,050
Tin " "	.....	460	5	17,345
" and black plates " "	.....	‖1,421	.....	26,174
Zinc..... " "	200	.....	625	274
" dross..... " "	55	.....	582	50
" ashes, skim " "	143	.....	907	20
" ore..... " "	.....	.....	9,868	.....
†Baltimore.				
Chrome ore.....long tons	.....	.....	.....	3,730
Copper, fine..... " "	797	.....	27,364	2,556
" matte... " "	.....	.....	.....	.....
Ferro-manganese " "	.....	.....	.....	155
Iron pig, bar etc. " "	523	433	3,458	20,874
" ore..... " "	.....	.....	.....	206,754
" pyrites..... " "	.....	.....	.....	25,584
Manganese ore.. " "	.....	.....	.....	101,525
Metals, old & Rails " "	65	.....	568	2
Nails..... " "	21	.....	1,250	.....
Pipe, iron & steel " "	220	.....	4,007	.....
Silicon..... " "	.....	.....	.....	85
Spiegeleisen..... " "	.....	.....	.....	693
Steel, bars, etc.. " "	1,449	.....	24,517	1,388
" wire ..... " "	21	.....	776	100
" rails..... " "	5,244	.....	64,770	..
Tin..... " "	.....	.....	.....	161
" and blackplates " "	.....	.....	.....	2,315
‖Philadelphia.				
Antimony..... long tons	.....	.....	.....	14
Chrome ore..... " "	.....	.....	.....	3,650
Copper, fine..... " "	213	.....	2,765	.....
" ore..... " "	.....	.....	.....	26,421
Iron, pig..... " "	.....	.....	1,355	2,768
" ore..... " "	.....	4,200	.....	173,024
" pyrites..... " "	.....	.....	.....	87,455
Manganese ore.. " "	.....	.....	.....	71,500
Spiegeleisen..... " "	.....	.....	.....	4,153
Tin..... " "	.....	10	.....	428
" and black plates " "	.....	.....	.....	1,175
Zinc..... " "	.....	.....	67	.....
ore..... " "	.....	.....	2,507	.....

Total United States.‖

Articles.	July, 1900. Expts.	July, 1900. Impts.	Year, 1900. Expts.	Year, 1900. Impts.
Antimony.. long tons	....	7	.....	858
" ore.... " "	.....	5	.....	1,650
Copper, fine, in all forms..... " "	‡11,636	§§7,742	101,865	33,432
Iron, pig & bar.. " "	15,892	21,819	94.047	66,787
" ore..... " "	6,791	65,865	10,423	550,852
Iron & steel plates " "	1,580	118	23,553	4,529
Iron & steel rails " "	40,278	21	227,258	988
" wire " "	5,489	204	50,457	1,086
Lead, in all forms " "	7.909	8,939	51,041	56,09
Manganese ore and oxide..... " "		38,033	.....	241,555
Nickel " &matte " "		239	1,488	.....
Nails, cut..... " "	1,709	.....	7,071	.....
" wire ..... " "	2,137	.....	19,971	.....
Quicksilver..... " "	16	.....	226	.....
Steel, billets, rods, etc..... " "	9,169	2,770	48,600	21,285
Tin..... " "	90	1,758	322	18,379
" &black plates " "	6	6,311	401	39,155
Zinc " "	657	59	14,534	610
" ore ..... " "	4,058	.....	23,237	.....

*New York Metal Exchange returns. †By our Special Correspondent. ‡ Not specified. §§ Monthly returns, Treasury Department. ‖ Report of Mr. John Stanton. ‖ Week August 24th. **Week, August 20th. Exports include domestic and foreign metals.

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c per lb. Spelter or zinc, 1½c. per lb. on pigs and bars 2c. on sheets etc Copper tin and platinum are free of duty.

Average Prices of Metals per lb., New York

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.
Jan	15.58	14.26	27.07	22.48	4.68	4.18	4.65	5.34
Feb.....	15.78	17.02	30.58	24.20	4.675	4.49	4.64	6.28
March...	16.29	16.35	32.90	23.82	4.675	4.37	4.60	6.31
April....	16.76	17.13	30.90	24.98	4.675	4.31	4.71	6.67
May.....	16.34	17.20	29.37	25.76	4.181	4.44	4.53	6.88
June.....	15.75	16.89	30.50	25.85	3.901	4.43	4.29	6.98
July....	15.97	17.10	33.10	29.63	4.030	4.52	4.28	5.82
Aug....	.....	17.42	.....	31.53	.....	4.5	.....	5.65
Sept....	.....	17.34	.....	32 74	.....	4.58	.....	5.50
October..	.....	16.94	.....	31.99	.....	4.575	.....	5.32
Nov.. ..	.....	16.49	.....	28.51	.....	4.575	.....	4.64
Dec	.....	15.85	.....	25.88	.....	4.64	.....	4.66
Year.....	.....	16.67	.....	25.12	.....	4.47	.....	5.75

Commencing with March 17th, the prices given in the table for copper are the averages for electrolytic copper; this is the case for both 1899 and 1900. The average price for Lake copper for the year 1899 was 17.61c. For January, 1900, the average price of Lake copper was 163c.; for February, 16.08c.; for March, 16.55c.; for April3.94c.;61. for May, 16 55o.; for June, 16c.; for July, 16.16c.

Financial Notes of the Week.

The market for silver is dull and firm. No new features can be reported. There is a good inquiry for futures, October-November.

The statement of the United States Treasury on Wednesday, August 29th, shows balances in excess of outstanding certificates as below, comparison being made with the statement of the corresponding day last week:

	August 22.	August 29.	Changes.
Gold	$69,054,647	$68,835,061 D.	$219,583
Silver	14,581,156	13,203.433 D.	1,377,723
Legal tenders.....	25,946,289	25,096,355 D	849,934
Treas. notes, etc.	606,553	323,928 D.	282,625
Totals	$110,188,615	$107,458,780 D.	$2,279,865

Treasury deposits with national banks amounted to $99,720,559, showing an increase of $3,228,046 for the week.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending August 25th, gives the following totals, comparison being made with the corresponding weeks in 1899 and 1898:

	1898.	1899.	1900.
Loans and discounts	$672,091,800	$756,789,900	$817,402,300
Deposits	760,234,400	858.135,100	901,356,300
Circulation	14,123,300	14,072,400	28,586.000
Reserve:			
Specie	155.968,700	172,381,100	173,531,200
Legal tenders	55,433,200	54,531,200	75.696,800
Total reserve	$211,401,900	$226,912,200	$249,228,000
Legal requirements..	165,058,600	214,533,525	225,339,075
Balance, surplus...	$45.343.300	$12,378,675	$23,888,925

Changes for the week, this year, were increases of $2,518,700 in loans and discounts; $7,-038,500 in deposits; $502,400 in circulation; $4,608,-300 in specie; $483,200 in legal tenders and $3,-321,875 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding date last year:

	1899.		1900.	
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'd..	$172,381,100	.....	$173,531,200	.....
England....	175,197,020	.....	166,776,995	.....
France	386,142,935	$240,137,700	449,627,440	$226,897,470
Germany....	141,885.000	73,090,000	144,350,000	74,360,000
Spain..	61,800,000	68,070,000	68,445,000	83,975,000
Aus.-Hun ..	152.405 000	52,995,000	188 495,000	49 820,000
Neth'l'ds ...	13,710,000	30.210,000	24,345 000	29.505,000
Belgium....	14.975 000	7,485,000	14.175.000	7,090,000
Italy	77,935,000	11,405,000	77.330,000	8,350 00
Russia	474.780,000	26,480,000	394,490,000	38,275.000

The returns of the Associated Banks of New York are of date August 25th and the others are of date August 24th, as reported by the Commercial and Financial Chronicle cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to August 16th, 1900, are reported by Messrs. Pixley & Abell's circular as follows:

	1899.	1900.	Changes.
India	£3,274,600	£3,609,287 I.	£334,687
China	869,453	1,405,266 I.	535,813
The Straits	113,946	399,766 I.	285,820
Totals	£4,257,999	£5,414,319 I.	£1,156,320

Arrivals for the week, this year, were £280,000 in bar silver from New York and £5,000 from the West Indies; total, £285,000. Shipments were £82,500 in bar silver to Bombay, £74,292 to China and £5,571 to the Straits; total, £162,-363.

Indian Exchange is steady at 15.91d. per rupee. Council bills have been in good demand in London, owing chiefly to the improvement in the business of India.

Other Metals.

Daily Prices of Metals in New York.

August.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London. Pence.	Copper. Lake. cts. ₱ lb.	Copper. Electrolytic ₱ lb.	Copper. London. £ ₱ ton.	Tin, cts. ₱ lb.	Lead, cts. ₱ lb.	Spelter. N. Y. cts. ₱ lb.	Spelter. St. L. cts. ₱ lb.
25	4.87¾	61⅜	28¼	16⅝ @16¾	16⅜ @16⅝	....	30¾	4.20 @4.25	4.15	4.00
27	4.87¾	61½	28⅛	16⅝ @16¾	16⅜ @16⅝	72⅛	30⅜	4.32½ @4.37½	4.10 @4.15	4.00
28	4.87¼	61½	28⅛	16⅝ @16¾	16⅜ @16½	72⅛	30	4.32½ @4.37½	4.10 @4.15	4.00
29	4.87½	61⅝	28⅛	16⅝ @16¾	16⅜ @16½	72⅛	30	4 32½ @4.37½	4.10 @4.15	4.00
30	4.87¼	61¾	28⅜	16⅝ @16¾	16⅜ @16½	72¼	30⅛	4.32½ @4.37½	4.10 @4.15	4.00
31	4.87½	61⅞	28 7/16	16⅝ @16¾	16⅜ @16½	72⅛	30⅞	4.32½ @4.37½	4.10 @4.15	4.00

London quotations are per long ton (2,240 lbs.) standard copper which is now the equivalent of the former g. m b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—The market continues strong. Producers generally are well sold ahead and copper for early shipment is very scarce. On the other hand, manufacturers are poorly supplied. Few domestic transactions are reported this week, but a good business is looked for after the turn of the month. We quote Lake copper at 16⅝@16¾c., electrolytic in cakes, wirebars and ingots at 16⅜@16½c., in cathodes at 16⅛@16¼c., and casting copper at 16¼@16⅜c.

The market in London for speculative sorts has been extremely quiet. Last week the market for standard copper closed at £72 17s. 6d. for spot and £73 7s. 6d. for three months. It opened this week at £72 17s. 6d. for spot and £73 12s. 6d. for three months; on Tuesday it was £72 7s. 6d. for spot and £73 for three months, and on Thursday, £72 15s. for spot, £73 2s. 6d. for 3 months. It closes at £72, 17s. 6. for spot, £73, 10s. for 3 months. Refined and manufactured sorts we quote: English tough, £76 10s.@£77 10s.; best selected, £77 10s.@£78 10s.; strong sheets, £83 10s.@£84; India sheets, £81 10s.@£82; yellow metal, 6⅞d.

Tin has had a declining tendency, but there is a somewhat firmer tone at the close. Transactions have been of a rather limited nature. There is a rumor that the difficulties between the American Tin Plate Company and their employees have been settled. We quote Straits for prompt shipment at 30⅞c., September shipment at 30½c.

In the absence of speculative interest the London market declined considerably. Closing last week at £139 5s. for spot, £135 10s. for three months, it opened on Monday at £138 for spot and £135 for three months, and the same day declined £1 more. On Tuesday it declined again £2 and on Thursday was £134 17s. 6d. for spot, £137 for three months. It closes at £136 10s. for spot and £135 5s. for three months.

The imports of tin into the United States in the seven months ending July 31st were 41,166,-774 lbs., against 43,476,189 lbs. last year, showing a decrease of 2,309,415 lbs. in 1900.

Lead.—An advance of one-eighth of a cent was reported on Monday, and we learn of much business at the higher prices. We quote New York at 4.32½@4.37½c., St. Louis at 4.27½@4.32½c.

In Europe the market has improved, Spanish lead being quoted at £17 13s. 9d., English lead 5s. higher.

Imports of lead into the United States and reexports of foreign lead refined here, for the seven months ending July 31st, are reported by the Bureau of Statistics of the Treasury Department as below, in pounds:

	1899.	1900.
Lead in ores and bullion.....	114,415,474	122,930,967
Lead, metallic	115,045,598	123,512,997
Total imports	229,461,072	246,443,964
Exports of foreign lead.....	92,730,791	113.897,535
Excess, imports	136,730,281	132,546,429

The imports this year increased 16,982,892 lbs., or 6.9%, and the exports 21,166,744 lbs., or 18.5%. The imports were chiefly from Mexico, and the exports to Europe

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: The price of lead has been marked up to 4.32½c., and trading is fairly active at these rates.

Spelter.—A good business is reported this week for domestic use. We quote St. Louis at 4c. and New York at 4.10@4.15c.

The foreign market has declined somewhat, good ordinaries being quoted at £19 2s. 6d., specials 5s. higher.

Exports of spelter or metallic zinc from the United States in the 7 months' ending July 31st were 32,538,878 lbs. domestic (12,828,719 lbs. in 1899) and 16,325 lbs. foreign (20,954 lbs. in 1899). In addition to this we exported 23,237 tons domestic zinc ore, as against 14,833 tons last year, showing an increase of 8,404 tons.

Antimony.—The metal is steady, with no change in prices, which are 10½c. for Cookson's; 9½c. for Hallett's; 9½c. for U. S. Star.

The imports into the United States during the 7 months ending July 31st were 3,696,036 lbs. antimony ore and 1,922,805 lbs. metal. As compared with last year there is an increase of 1,586,359 lbs. ore and 340,975 lbs. metal.

Nickel.—The price continues firm at 50@60c. per lb., according to size and terms of order.

Exports of nickel ore and matte from the United States in the seven months ending July 31st were 3,332,762 lbs., against 2,841,921 lbs. in 1899, showing an increase of 490,841 lbs.

Platinum.—Consumption continues good and prices are strong. For ingot platinum in large quantities $18.20 per Troy oz. is quoted in New York.

Imports of platinum into the United States in the seven months ending July 31st were 4,894 lbs., against 3,534 lbs. in 1899 and 4,026 lbs. in 1898.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 72c. per gram, showing an increase of 1½c.

Quicksilver.—The New York quotation is unchanged at $51 per flask for large lots; for small orders $52.50@$54 is asked. San Francisco quotations are $51.50@$52 for local deliveries, and $46.50@$47 for export. The London price is £9 5s. per flask, with the same figure quoted from second hand.

Exports of quicksilver from the United States in the 7 months ending July 31st were 527,807 lbs., as against 804,378 lbs. last year, showing a decrease of 176,571 lbs.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as follows:

	Per lb.		Per lb
Aluminum.		Ferro-Titanium (20%)..	$1.00
No. 1, 99% ingots	.33@37c.	Ferro-Tungsten (37%)...	35 c.
No. 2, 90% ingots	... 31@34c.	Magnesium	.$2.75@$3
Rolled sheets	....42c. up	Manganese (over 99%)..	$1.05
Alum.-bronze	20@23c.	Mangan'e Cop. (20% Mn)	32c.
Nickel-alum	.33@39c.	Mangan'e Cop. (30% Mn)	38c.
Bismuth	.$2.25	Molybdenum (Best)....	$1.45
Chromium (over 99%). .	1.00	Phosphorus.....	50c.
Copper, red oxide.....	5½c.	American.....	70c.
Ferro-Molyb'um (50%)..	$1.00	Tungsten (Best)..... ..	.92c.
Ferro-Titanium (10%). .	90c.		

Variations in prices depend chiefly on the size of the order.

LATE NEWS.

Summit County—Colorado.

(From Our Special Correspondent.)

Elsie Gold Mining Company—This company's property on Jack Mountain, near Kokomo, shows some good ore carrying free gold in the first drift in the main tunnel.

Free America.—This claim, near Kokomo, on Jack Mountain is almost ready to ship again. Jerome B. Wheeler, of Aspen, is interested in the property. Frank Lindsay has charge.

Queen of the West.—This claim on Jack Mountain is taking out some high-grade ore and shipments will soon begin. The mine in former years shipped heavily. The ore carries high silver values. The lessees are I. N. Turner & Company, and the property is owned by Cooples & Brooken, of St. Louis.

Robert Emmett.—This mine on Fletcher Mountain, at the head of Mayflower Gulch, has been leased and bonded to Robertson, formerly manager of the Snowbank. Shipments are reported to have given high gold and good silver values.

Wilfley.—This property on Elk Mountain, near Kokomo, is running full force and the concentrating mill is busy day and night. The mine at one time was the largest producer in Summit County, and has been a steady producer ever since 1879. E. C. Byron, of Denver, a large owner, is manager.

Teller County—Colorado.

(From Our Special Correspondent.)

Elkton Consolidated Mining and Milling Company.—It is understood that the vein has been cut on the 8th level, where drifting was recently begun. A number of surface improvements are being put up. This company is now one of the largest ones in the district since the consolidation with the Raven and Tornado.

Pharmacist Consolidated Mining Company.—The annual meeting of the stockholders of this company will be held September 3d in the town of Cripple Creek and is looked forward to with interest. At present there is considerable friction between 2 factions of the directors of the company and a stormy meeting is looked for. The factions are Messrs. Chambers, Miller and Maroney on one side and Messrs. Burns, Peck and Joneson on the other. The property is at present worked under lease and it is understood that the lessee has to sink the main working shaft to a depth of 200 ft. below the point where it was when the lease was given. A new compressor has been put in. This property is one of the early shippers of the district, but has not shipped much of late.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 270.)

New York. Aug. 31.

The imports and exports of chemicals, etc., at all United States ports in July were as below:

Articles.	July.		Year, 1900.	
	Imports.	Exports.	Imports.	Exports.
Bleaching Powder, lbs..	7,847,346	.....	82,641,509	147,908
Caustic Soda, lbs.	256,002	70,119	5,206,533	637,033
Sal Soda, lbs	433,200	.....	2,862,366	.....
Soda Ash, lbs.....	2,638,589	2,000	51,119,865	24,659
Chlorate of Potash, lbs....	241,154	26,240	865,698	306,560
Copper Sulphate, lbs..	.....	667,633	.....	40,932,434
Nitrate of Soda, tons.....	10,142	46	91,581	2,084
Muriate of Potash, lbs....	7,199,489	.....	45,197,217	278,062
Phosphate rock, tons.	5,298	59,837	53,992	393,618
Pyrites, "	20,255	.....	201,712	.....
Brimstone "	11,578	1	94,920	407
Saltpeter, lbs .	857,247	24,350	6,579,434	25 299

Imports and exports in most cases were less in July than for the previous month.

Heavy Chemicals.—Demand is improving in most lines. Next fire domestic alkali sold at 75c. per 100 lbs. f. o. b. works, and 1901 domestic high-test caustic soda at $1.80 per 100 lbs., f. o. b. works. Bleaching powder is quiet, while chlorate of potash is weak, owing to larger offerings by domestic makers and a slack demand. We quote per 100 lbs. as below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%.	75@80	85@90	90@95
" 48%.	80@85	90@$1.00	$1.00@1.05
Caustic Soda, high test ...	$1.85@$1.90	2.12½@2.25	2.40@2.55
powd. 60%.	.....	3.00@3.25	....
70@74%.	.....	3.25@3.50	.....
98%.	....	3 50@4.00	3.75@4.00
Sal Soda	70@80.	....	67½
" conc.	1.45@1.75	....	1.75
Bicarb. Soda..	1.25@1.37½	.....	1.75@2.25
" " extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime..	.....	....	1.80@1.87½
other brands.	.....	....	1.50@1.65
Chl. Pot cryst	. ...	8.75@9.00	10.00@10.25
" powd.	....	.....	10.:5@10.50

Acids.—Acetic acid for shipment continues to improve and some good orders have been booked. Contract deliveries of sulphuric acid are on the increase also, while muriatic acid finds only a moderate request. Blue vitriol for export is in better demand, and first hands quote $5.25 per 100 lbs., but second-hands have sold at less.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No 8 in lbs....	$1.62½	Nitric, 36°	$3.87½
Blue Vitriol. ...	5.00@5.25	Nitric, 38°....	4.12½
Aqua Fortis, 36°	3 62½	Nitric, 40°.....	4.37
Aqua Fortis, 38°	3 87½	Nitric, 42°.....	4.75d.
Aqua Fortis, 40°	4.12½	Oxalic .. . .5.75@5.87½	
Aqua Fortis, 42°.....	4.50	Sulphuric, 66°.....	1.20
Muriatic, 18°.	1.20	Sulphuric, 60° . . .	1.05
Muriatic, 20°.	1.35	" bulk 50° ton....14.00	
Muriatic 22°.....	1.50		

Brimstone.—Spot is limited. Hence store lots bring fancy prices, sales of best unmixed seconds being made around $25 per long ton. Ex-vessel sales are reported at $22.25@$22.75 per ton, and shipments at $21.50@$21.75 for best unmixed seconds, while best thirds are obtainable at $2½ per ton less. A charter was recently taken of 1,521 tons from Sicily to New York at 10s. 3d. (extra charge for two loading ports).

Advices just received state that the exports of sulphur from Japan in 1899 were 9,064 tons. The local consumption in 1899 was 2,314 tons, and at the end of the year stocks amounted to about 2,470 tons. A deposit has been discovered on Iturup Island, which is to be worked by foreign capital. The crude sulphur must be shipped to Hakodate to be refined and prepared for market.

Pyrites.—Demand continues good and prices are unchanged. New York imports this week were 3,171 metric tons iron pyrites from Spain. We quote: Mineral City, Va., lump ore, $5 per long ton (basis 42%), and fines $4.40. Charlemont, Mass., lump, $5.50, and fines, $5. Spanish pyrites, 13@15c. per unit, according to percentage of sulphur contents, delivery ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46%@51% of sulphur; American, 42%@44%.

Fertilizing Chemicals.—Dull generally, though some large sales of dried fish scrap are noted around $23 per ton f. o. b. factory.

Sulphate of ammonia, foreign gas liquor, on spot, $2.90 per 100 lbs., and shipment at $2.82½@$2.85, while the domestic is obtainable at $2.82½ f. o. b. works, Everett, Mass. Other quotations are: High grade Western blood, $1.95 per unit, f. o. b. Chicago; tankage, $1.80 and 10c. per unit, f. o. b. Chicago; Calcutta bone-meal, $23@$25 per ton; domestic steamed ground bone, $21@$22; dried fish scrap, $23 per ton f. o. b. factory; acid phosphate, 14@16%, 65@67½c. per unit; bone-black, spent, $15@$16 per ton; azotine, $1.90@$2 per unit.

Nitrate of Soda.—The market has taken a sudden turn upward, both for spot and future. Arrivals in September are expected to be very light, and deliveries during that month are quoted at $1.72½ per 100 lbs. Spot is held at $1.75. The coast market has advanced and freights are higher, hence futures cannot be bought at this time at less than $1.80. Importers, believing prices will go higher, are not anxious sellers. The shipments from Chile to the United States are light.

Concerning the Chilean nitrate of soda market, we are advised by Messrs. Jackson Brothers, of Valparaiso, under date of July 14th, that considerable activity has prevailed during the past fortnight, transactions amounting to almost 1,700,000 qtls. having taken place for deliveries up to January, 1901. Nevertheless, prices have not altered appreciably except for the nearer months. Some inquiry for monthly parcels during next year is noted, but sellers show little inclination to operate except at high figures. The production during June is calculated at 2,709,000 qtls., making a total for the 6 months of 15,412,000 qtls., against 14,435,000 qtls. during the same period of 1899. The exports for June were 2,546,000 qtls., making a total of 11,754,000 qtls. for the 6 months, being a decrease of 523,400 qtls., as compared with last year. The consumption of the world for the 6 months reached 21,685,000 qtls., being an increase of 567,000 qtls. over that during same period of 1899. We quote 95%, July, 5s. 2½d.; August, 5s. 3d.; September-November, 5s. 3½d., and December-January, 5s. 3d., ordinary terms sellers, while the 96% quality is held for 5s. 4d. steamer terms. The price of 5s. 2½d. with all round freight of 37s. 6d. stands in 7s. 8d. per cwt. net cost and freight without purchasing commission.

Phosphates.—The buying season abroad begins September 1st, but as yet consumers are giving out few orders, though some business is reported in Florida high-grade rock at 8d. per unit ($12.48 per long ton) c. i. f. Hamburg, Germany. A charter of 1,391 tons from Fernandina to Stettin, Germany, was recently taken at 24s. ($5.76), September sailing. In the hard rock region of Florida comparatively few large mines are now in operation, owing to the unsatisfactory condition of the consuming market. It is said that large quantities of rock are stored, waiting shipment as soon as better prices rule. In the southern pebble district nearly all the plants are working, and fair shipments are being made. Tennessee rock shows an improving demand and during the week ending August 22d 3,200 tons were shipped to Europe. South Carolina river rock is moving in fair quantities. Some rock has been sold in Great Britain at 6½d. per unit ($7.80 per ton).

We quote, per ton, as below:

Phosphates.	Per Ton F. o. b.	C. i. f. United Kingdom or European Ports.	
		Unit.	Long ton.
*Fla. hard rock (77@80%)	$7.50@8.00	7¾@8½d	$12.09@12.87
*Fla. land pebble (68@73%	4 35	7@7½d	9 80@10.15
*Fla. Peace River. 58@63%	3.00@3 50	7@7½d	8.40@8.70
†Tenn. rock 78%, export.	4.00@4.50	7¼@7½d	11.31@11.70
†Tenn.....78% domestic.	3.30@3 50	.....	.....
†Tenn.....75% "	3.00@3.25	.....	.....
†Tenn .....72% "	2.65@2.75	.....	.....
‡So. Car. rock, crude...	4.00	.....	.....
§So. Car. rock, dried.....	4.50	6½d	7.80
Algerian, rock...(63@70%	.....	7@7½d	9.33@10.05
Algerian, rock ..(58@63)	....	6¾@7¼d	8.10@8.70

* Fernandina. † Mt. Pleasant. ‡ At mines. § On vessels, Ashley River.

Liverpool. Aug. 22.

(Special Report of Joseph P. Brunner & Co.

There is a quiet trade going on in certain of the heavy lines of chemicals, but without any active demand.

Soda Ash.—While new business is not particularly brisk, manufacturers being well sold to end of the year, are in a pretty independent position, and fall prices have to be paid by buyers. We quote spot range for tierces about as follows: Leblanc ash, 48%, £5@£5 5s.; 58%, £5 10s. @£5 15s. per ton net cash. Ammonia ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton, net cash. Bags, 5s. per ton under price for tierces. Soda crystals are very firm and a good business is passing at £3 2s. 6d. per ton, less 5% for barrels, or 7s. less for bags, with special quotations for a few favored markets. Caustic soda is strong at recent rates and nothing is offering in second hands. We quote spot range as follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.@£10 17s. 6d.; 76%, £11 5s.@£11 10s. per ton net cash.

Bleaching powder continues lifeless and £6@£6 15s. per ton net cash is about nominal range for hardwood.

Chlorate of potash is in better request and a fair business is reported at about 3⅞d.@4d. per pound net cash, principally for export to the Baltic.

Bicarb. soda is unchanged at £6 15s. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages, also special quotations for certain export quarters.

Sulphate of ammonia is quiet at £11 2s. 6d.@£11 5s. per ton, less 2½% for good gray at 24@25% in double bags f. o. b. here.

Nitrate of soda is steady at £8 7s. 6d.@£8 12s. 6d. per ton, less 2½% for double bags f. o. b. here, as to quality.

Messina, Sicily. Aug. 1.

(Special Report of Emil Fog & Sons.)

Brimstone.—Receipts have been unusually slow for the season, showing a falling off of about 16,000 tons as compared with 1899. The supply being restricted, prices strengthened, giving impulse to speculation, which appears to have bought quite largely for forward delivery. New business from abroad has been handicapped by a sharp advance in freight rates to Baltic and Ocean ports. Freight rates are 10s. for full cargoes to New York; 11s. 6d.@12s. to Philadelphia, Baltimore and Portland, Me.; 14s. to Baltic ports. We quote brimstone as follows: Refined block (100%), 81s. 6d. per long ton; best unmixed seconds, 77s.; best thirds, 67s. 9d., all f. o. b.

Exports in July were 27,541 long tons, as against 30,268 tons last year. The shipments to the United States alone were 2,000 tons best unmixed seconds and 550 tons best thirds; total, 2,550 tons, against 10,200 in July, 1899. Stocks in Sicily on July 31st, 1900, were 208,114 tons, against 214,148 tons at the same time last year.

MINING STOCKS.

Complete quotations will be found on pages 267 and 268 of mining stocks listed and dealt in at:

Boston. Philadelphia. Montreal.
Colo. Springs. Salt Lake. London.
Denver. San Francisco. Mexico.
New York. Spokane. Paris.
Toronto.

New York. Aug. 31.

Trading in mining shares has been confined to professional speculators, who are making every effort to keep this market before the public. Of late, however, buyers have been few in number, notwithstanding the low prices at which shares were offered. The Colorado shares, particularly those of Cripple Creek companies, made up a large part of the transactions. The closely controlled stocks, such as Homestake, of South Dakota, and Ontario, of Utah, are very little dealt in, and what shares are put upon the market are quickly bought in by interested parties. As regards the Comstocks, little can be said, as they are considered chippers on which brokers occasionally make the price of a cigar. The scheme to unwater the lower levels of the Lode and uncover some rich ore bodies is practically the only pivot of hope stockholders have. Even this is overshadowed by the continued assessments.

During the past week the copper shares were sold in comparatively small lots at fluctuating prices. Amalgamated sagged to $87½, and later recovered to $87¾, but at the close it is again easier, with practically no demand. Anaconda, its running mate, rose early in the week to $45¼, but dropped to $44¼; dealings were limited. Union, of North Carolina, was in some request and sold at $2½@$2¾, closing at $2⅝ bid. British Columbia is looking up better, though transactions are moderate; sales were made at $11½.

In the Colorado section a sale of Portland was made at $3.20—the first in several weeks. Elkton is higher at $1.71, and Isabella changed hands at $1.19 in anticipation of a dividend in September. Jack Pot was steady at 53c., Creede & Cripple Creek at 12½c., Cripple Creek Consolidated at 11c., Alamo, 13c.; Little Chief, 16c., and Iron Silver brought 57c@56c.

A sale of Standard Consolidated, of California, was reported at $4.20, and transactions in Brunswick were recorded at 22@23c.

Of the Comstocks, sales were made of Ophir at 55c.; Yellow Jacket, 25c.; Hale & Norcross, 15c.; Gould & Curry, 13½c., and Best & Belcher, 12½c.

The industrial shares showed some activity, but the unsettled condition of the iron and steel market has prevented sales of any large blocks of these shares. However, the American Steel and Wire common stock shows transactions in 36,770 shares at prices varying from $35 to $34⅛, while the preferred made sales of 5,302 shares at $74@$75¼. The next largest dealings were made in Federal Steel common, amounting to 10,325 shares at $34¼@$33¼, and of the preferred stock, 4,282 at $66½@$67. Republic Iron and Steel common sales aggregated 8,005 shares at $11⅛@$13, and the preferred 1,920 shares at $53¾@$55. Tennessee Coal and Iron sold 9,635 shares at $69½@$70½.

Boston. Aug. 28.

(From Our Special Correspondent.)

The mining share market is dull and will continue so for several days, as the Stock Exchange has decided to close from Friday, 3 p. m., to Tuesday, 10 a. m., to celebrate Labor Day. Consequently, interest in speculation this week has sagged. Prices have weakened a little in the shares that showed gains last week. Thus, on Monday Calumet & Hecla fell off 7 points to $750 and later to $745, Boston & Montana 4 to $311, and Tamarack 3 to $211. Losses in the other shares during the week were: Amalgamated, from $1 to $88; Arcadian, $1 to $19; Baltic, $1.50 to $20; Old Dominion, $1 to $17.50; Osceola, $1.50 to $66.50; Parrot, $1 to $41.38; and Utah, 75c. to $30.50.

Dominion Coal common fluctuated between $43 and $41.50, while the preferred made one sale at $110¾. New England Gas and Coke sold 262 shares at $13½@$14½.

The cheaper stocks showed moderate trading, as the public is already well supplied with them.

To-day trading was desultory and some closing quotations are Boston & Montana, $315; Quincy, $140; Osceola, $67½; Parrot, $41½; Utah, $30½; Baltic, $20 and Centennial $17. Dominion Coal brought $41½, and the preferred $110¾.

The sales this week amounted to 14,090 shares.

The reorganization of the Pioneer Gold Mining Company of California will be carried out as decided by the directors at a recent meeting. Briefly, this scheme taxes shareholders 50c. per share for stock in the new company, of which 20c. is to be paid in when the exchange is made. The company will be reorganized under the laws of a Western State.

The Intercolonial Copper Company, a Boston company has had plans and specifications made for a 100-ton concentrator to be erected at Dorchester, N. B. The directors of the company are Darius L. Goff, president; Henry A. Sterns, vice-president; J.W. Phillips, treasurer; T. J. Edwards, secretary; Walter Callender, Walter S. Ballou, Albert E. Farwell, John A. Paine and Moses G. Leonard. Leon S. Griswold is mining engineer.

Colorado Springs. Aug. 25.

(From Our Special Correspondent.)

The slump which has been affecting other speculative market has at last reached the Colorado mining stocks. The local markets have shown a loss of about 20% during the past 6 days and close to-day with nothing reassuring in the aspect. Eastern investors will do'well to take their time before buying upon such a market as is now ruling; for there will doubtless be a-plenty of chances to get in at better figures. What trading there is at this time is in large measure local speculation.

Elkton and Isabella were the features of the week; the former, because of continued good reports, and the latter because of an abundance of bad reports. Elkton scored $1.72 a share to-day, the highest since its consolidation with the Raven and Tornado, some 3 months back. It declined, however, closing at $1.65. The bulge was due to the fact that the 800-ft. level has cut the big vein which has produced $300,000 from the 5th and 6th levels during the past 3 months. This company will declare a dividend of $75,000 September 1st. Isabella declined to $1.12 upon curb reports that there was internal dissatisfaction in the board of directors, threatening a disruption of the board, and also to the rumor that this company was about to acquire 33 acres of additional ground belonging to directors paying therefor an exorbitant figure. The stock closed to-day weak at $1.17. Moon Anchor opened at .52, advanced to .54 and closed weak at .50. This company will increase its capitalization from $600,000 to $1,250,000 at a special meeting of the stockholders to be held September 22d, in this city. As indicating the falling off of business in mining stocks the bank clearings this week were $750,000, as against $1,400,000 last week.

San Francisco. Aug. 25.

(From Our Special Correspondent.)

Mining stocks are in practically no demand, and the few Comstock shares that show sales were handled by professional traders to keep them before the public. News from the Comstock lode is meager and of little consequence.

Some quotations noted are: Consolidated California & Virginia, $1.35@$1.40; Ophir, 56@57c.; Caledonia, 53@54c.; Hale & Norcross, 20c.; Mexican, 29c.; Potosi, 23c.; and Yellow Jacket, 28c.

The Oil Exchange shows limited trading in Home shares at $4.50; San Joaquin, $4, and Independence at 17c.

Some losses noted in prices this week are: Best & Belcher, 2c. at 15c.; Caledonia, 13c. at 39c.; Challenge Consolidated, 4c. at 18c.; Chollar, 2c. at 14c.; Confidence, 10c. at 65c.; Consolidated California & Virginia, 15c. at $1.20; Hale & Norcross, 2c. at 16c.; Mexican, 2c. at 24c.; Ophir, 5c. at 49c.; Potosi, 2c. at 20c.; Sierra Nevada, 2c. at 34c.; Standard Consolidated, 20c. at $3.90; Union Consolidated, 3c. at 17c.; Yellow Jacket, 4c. at 22c. A gain of 2c. was made in Gould & Curry at 17c. The other stocks were practically stationary in price and ruled about as last week.

The recent sale of the Sulphur Banks Quicksilver Mine, in Lake County, Cal., has led to the formation of the Empire Consolidated Quicksilver Mining Company of New Jersey to control that and 3 other properties, 2 of them being in Colusa County. This new organization's capital stock has been fixed at $5,000,000. The properties taken into the company are: Sulphur Banks Quicksilver Mining Company, Lake County Abbott Quicksilver Mining Company, Lake County; Empire Quicksilver Mining Company, Colusa County; Central Quicksilver Mining Company, Colusa County. The Sulphur Banks was a good producer in former years.

The Needles Smelting Company has been incorporated with a capital stock of $50,000, all subscribed. The directors are Charles Corning, of Pasadena; Robert Charlton, of Needles; C. H. Granger, of Pasadena; Kate S. Corning, of Pasadena, and Willoughby Rodman, of Los Angeles, Cal. Mr. Corning is the principal stockholder.

Portland, Ore. Aug. 25.

(From Our Special Correspondent.)

In the Eastern Oregon gold-fields new strikes are made constantly in the older properties. New prospects are opening up and prospectors with their packs are entering the hills on every hand. The Concord, located near the Red Boy, and controlled by J. H. Robbins and his friends, recently made a rich strike in the north tunnel, and the average yield from this is said to be $50 to the ton. Work is being pushed by a force of 12 men, superintended by C. C. Robbins. The Ibex Mine is throwing good ore upon the dump, employing 22 men, working night and day shifts. Simcoe Chapman, the superintendent, says: "We are very well satisfied with our progress and will get out ore and test it thoroughly and then put up a suitable mill. The Cougar Mine has a cyanide mill of 250 tons running night and day and Mr. Larkins says he intends to double its capacity at once. The property is a splendid one. Two million dollars, it is said, have been offered and refused. The Mammoth and Bald Mountain properties, owned by Boston and Lowell people, are producing well and the superintendent says that things never looked better. Each company expects to put up a mill before spring. Altogether, Eastern Oregon never was in better shape.

London. Aug. 7.

(From Our Special Correspondent.)

The financial season, as well as the social season, ends with the beginning of August, for all the leading lights in the city commence their holidays at this time, and it is of little use trying to inaugurate any new business until they come back, some time toward the end of October. Though the year contains twelve months according to the calendar, the actual time occupied by anything but routine business is not much more than six months. The financial year begins practically on November 1st, and with an interval of three or four weeks for Christmas and a similar holiday for Easter, and a fortnight for Whitweek, and with half time during the distractions of the summer races, Henley, etc., the end comes toward the beginning of August. With the end of the financial season it would be a suitable time to review the transactions and movements of the year 1900 as far as it has gone, but unfortunately for the reviewer there is very little to say. The business on the Stock Exchange, as far as mining business is concerned, has been less than we have been accustomed to for six or seven years. The South African market has been quite at a standstill on account of the war. The West Australian section has been chiefly conspicuous for the failure of the leading mines to maintain their dividends owing to the exhaustion of the free-milling ores and the unpreparedness of the managers to tackle the sulphides. The Indian mine shares have been without feature, though the output and the management remains without change. The chief item of interest in American has been the flotation of a number of subsidiary companies with large capital to work individual groups of properties at Rossland by the Whittaker Wright promoting companies. Altogether the year 1900 has not been, so far, a very wonderful time, but there is no sign of failures nor of poverty nor of vacant premises, as was the case in the dull times seven years ago.

As regards the week just past, all the markets have been firm and steady, as most of the professional operators were shaken out some days ago, and the time has been chiefly occupied in straightening out accounts in view of the holidays. No new prospectuses have been advertised, and I hear of no new company likely to ask for subscriptions from the public.

The iron and steel and coal companies are, of course, doing excellently, and several of the new companies floated during the past year or two are able to issue good reports. For instance, Pease & Partners of Darlington show a profit for the year ended June 30th last of £335,000 after providing for all debenture interest. Of this profit £100,000 is put to reserve fund and £200,000 is distributed as dividend on the ordinary and deferred shares, being at the rate of 20% per annum. The new Weardale Company, which used to belong to the Barings, and is now directed by Sir Christopher Furness, as a result of the first year's working is paying 10% to its ordinary shareholders and 15% to its deferred shareholders. It is hardly to be expected that these dividends should be regularly maintained, for lean years will come around again, but it should be said that much of the success of these two companies arises from their capable management.

The gold production of the Colar District in July is reported at 39,355 oz. crude, of which 2,113 oz. were from scaling amalgamating plates of the Ooregum Mine. As compared with June, the production in July shows a decrease of 517 oz. For the 7 months ending July 31st the total output was 282,516 oz., which compares with 244,087 oz. in the corresponding period last year, showing an increase of 51,571 oz., or 18.3%. The total this year was equal to 254,519 oz. fine gold, or $5,260,908.

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Date.	Place of Meeting.
Am. Sm & Ref..	....	Sept. 12.	Jersey City, N. J.
Fanny Rawlings	Colo ...	Sept. 7.	Colo. Springs, Colo.
*Geyser-Marion.	Utah. ...	Sept. 5.	Salt Lake City, Utah.
Globe Hill Con	Colo	Sept. 4	Denver, Colo.
Gold City	Colo ...	Sept. 6.	Colo. Springs, Colo.
*Golden Star....	Utah. ..	Sept. 27.	Salt Lake City, Utah.
Morning Star. ..	Colo ...	Sept. 3.	Colo. Springs, Colo.
Pelican	Colo ...	Sept. 5.	Colo. Springs, Colo.
Republic I. & S..	. ...	Sept. 12.	Jersey City, N. J.

*Special meeting.

DIVIDENDS.

NAME OF COMPANY.	Latest Dividend. Date	Per share.	Total.	Total to date.
		$	$	$
†Acacia, Colo	Sept. 15	.01	15,000	30,000
§American Coal, Md..	Sept 1	1 00	60,000	982,000
†Am. Steel & Wire, com	Oct. 2	1 75	.....	.....
Andover Iron, Pa .	Sept. 1	5.00	.....	.....
Arizona Copper, ord..	Sept. 30	.84	132.913	.....
Bethlehem Steel	Sept. 1	.50	.....	.....
Breece, Colo.	Sept. 1	.05	10,000	90.000
Buffalo Hump. Ida.	Sept. 1	.10	30.000	215,000
Colo Fuel & Iron.....	Sept. 5	.80	160,000	.....
Gemini, Utah.....	Aug. 22	10.00	50,000	700,0.0
†Gen. Chemical, com..	Sept. 1	1.00	.....	.....
Gwin, Cal.....	Aug. 21	.05	5,000	93.500
*Mammoth Utah	Sept. 1	.05	20,000	1,770 000
†National Lead, pf. ..	Sept 15	1.75	240,820	10,318,460
†Park Steel, pf....	Sept. 1	1 75	.....	.....
Republic I. & S., pf...	Oct. 1	1.75	371,997	1.905,986
†Standard Oil.....	Sept. 15	8.00	7,800.000	.....
Union, Colo.....	Sept. 1	.25	312.500	383,244
*Union Zinc & L., Kas	Sept. 4	.25	5,000	15,000
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....

* Monthly. † Quarterly. §Semi-Annual.

ASSESSMENTS.

NAME OF COMPANY.	Location.	No	Delinq.	Sale.	Amt.
Alliance Expl. & Mg..	Cal..	3	Sept. 11	Oct. 2	.05
Belcher.....	Nev..	65	Sept 14	Oct. 5	.10
Ben Butler	Utah	5	Sept 10	Oct. 2	.00¼
Best & Belcher.....	Nev..	71	Sept. 7	Sept. 28	.15
Brunswick Con.	Cal..	14	Aug. 20	Sept. 13	.07
Challenge Con	Nev..	29	Aug 21	Sept. 12	.15
Chollar.....	Nev..	52	Sept. 6	Sept. 27	.10
Clarissa	Utah	2	Oct. 1	Nov. 10	.0 ½
Confidence	Nev..	35	Sept. 17	Oct. 8	.20
El Rey.....	Utah	1	Aug. 30	Sept. 17	.05
Eureka Con. Drift ...	Cal..	..	Sept. 8	.....	.01
Eureka-Swansea Ext.	Utah	2	Oct. 1	Nov. 1	.00½
Exchange.....	Utah	1	Sept 1	Sept. 17	.01
Goleta	Cal	2	Sept. 25	Oct. 25	.15
Gould & Curry.....	Nev.	91	Sept. 8	Oct. 1	.15
Hale & Norcross.....	Nev..	5	Sept. 4	Sept. 25	.10
Home.....	Cal..	...	Aug. 30	.....	.05
Independence.....	Utah	3	Sept. 1	Sept. 17	.01
Joe Bowers.....	Utah	2	Sept. 18	Oct. 5	.01
Julia Con.....	Nev..	30	Sept. 7	Sept. 28	.03
Justice	Nev..	69	Sept. 22	Oct 15	.05
Little Chief.....	Utah	4	Aug. 25	Sept. 15	.01
Mammoth Garfield .	Cal..	...	Aug. 4	Oct. 2	.17½
Mexican..... ...	Nev.	61	Aug. 14	Sept. 5	.15
Nevada.....	Nev.	..	Aug. 20	.....	.02½
Occidental Con.	Nev.	35	Aug. 17	Sept. 11	.05
Overman.....	Nev..	5	Sept 6	Sept. 27	.05
Potosi	Nev..	56	Aug. 23	Sept. 12	.10
Reward	Cal..	..	Sept. 3	.....	.02
Sailor Con.....	Cal..	5	Aug 27	Sept. 15	.01
Savage	Nev..	101	Sept. 18	Oct. 8	.10
Shower Con	Utah	2	Oct. 1	Nov. 1	.02
Sierra Nevada.....	Nev..	19	Aug 14	Sept. 3	.15
Snowflake	Utah	17	Aug. 13	Sept. 1	.01
Sweet Vengeance.....	Cal..	13	Aug. 16	Sept. 6	.10
Tetro..... ...	Utah	14	Aug. 25	Sept 15	.01
Young America.....	Utah	...	Sept. 8	.....	.18
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....

STOCK QUOTATIONS.

NEW YORK.

NAME OF COMPANY.	Location.	Par val.	Aug. 24. H.	Aug. 24. L.	Aug. 25. H.	Aug. 25. L.	Aug. 27. H.	Aug. 27. L.	Aug. 28. H.	Aug. 28. L.	Aug. 29. H.	Aug. 29. L.	Aug. 30. H.	Aug. 30. L.	Sales.
Alamo	Colo.	1									.18				500
Amalgamated C.	Mont.	100	88.00	88.75	88.00	87.63	87.75	87.50	88.00	87.50	88.00	87.50	88.50	87.88	300
Anaconda, c	Mont.	25	44.50	44.00	45.00	44.25	44.25	44.75	44.50	44.25	45.25		44.25		2,295
Anaconda Gold.	Colo.	5													
Argentum Jun.	Colo.	2													
Belcher	Nev.	3													
Best & Belcher	Nev.	3									12½				300
British Col. Cop.	B. C.	10	11.63	11.50	11.88	11.63	11.75	11.50	11.88	11.63	11.63	11.25	11.63	11.13	200
Brunswick	Cal.	1			.23				.23	.22					1,200
Challar	Nev.	3													
Chrysolite	Colo.	50													
Comstock T.	Nev.	100													
" bonds	Nev.	100													
Con. Cal. & Va.	Nev.	2½	1.35		1.40										500
Creede & C. C.	Colo.	1							.12½						1,000
Cripple Cr. Con.	Colo.	1							.11						2,000
Crown Point	Nev.	1			.11										100
Elkton	Colo.	1					1.71								200
Father De Smet	S. Dak	100													
Golden Age	Colo.	1													
Golden Fleece	Colo.	1													
Gould & Curry	Nev.	3									.13½				800
Hale & Norcross	Nev.	3					.18	.15							1,200
Homestake	S. Dak	100													
Horn Silver	Utah.	20													
Iron Silver	Colo.	20			.57		.57		.56						800
Isabella	Colo.	1	1.20						1.19						600
Jack Pot	Colo.	1					.53								500
King & Pemb.	Ont.	10													
Lacrosse	Colo.	10													
Leadville	Colo.	10	.05		.06										800
Little Chief	Colo.	1	.17								.16				200
Mexican	Nev.	3													
Mollie Gibson	Colo.	5													
Mt. Rosa	Colo.	1	.70												2,000
Occidental	Nev.	3	.10												500
Ontario	Utah.	100													
Ophir	Nev.	3			.58	.55	.55								2,300
Pharmacist	Colo.	1													
Phoenix									.03½						500
Plymouth	Cal.	10													
Portland	Colo.	1			3.25				3.20						500
Potosi	Nev.	3			.25										300
Quicksilver	Cal.	100									1.50				100
Savage	Nev.	2½													
Sierra Nevada	Nev.	3													
Small Hopes	Colo.	20													
Standard Conn.	Cal.	10					4.20								50
Syndicate	Cal.	1			.10										500
Tenn. Copper	Tenn.	25	15.38	14.00	15.38	14.00	15.38	14.00	16.00	14.00	16.00	14.00	15.00	13.00	
Union Copper	N. C.	10													
Work	Colo.	1	.30												100
Yellow Jacket	Nev.	3					.27		.25						1,000

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.		$100					36⅛	35⅜	37¼	36⅜	36⅛	36⅛	36¾		2,350
" " " " pf		100					89¼		89		88¾	88⅜	89		718
Am. S. & W. Con		100	35	34⅜	34⅝		34⅜	34⅛	34⅛	34⅛	36¾	34¾	35½		36,770
" " pf'r n		100	74¼	74	74⅜	74⅛	74		74		75¼	74⅛	74⅛		5,302
Col. Fuel & I.	Colo.	100			34¾		34⅛		34⅛		35¾	34⅛	35		1,750
Col. & H. C. & I.	"	100													
Federal Steel		100	34¼	34	34	33⅝	34	33½	33⅛	33¼	34⅛	33⅛	34⅜		10,325
" " pf.		100	66⅝				66½				67	66¾	67		4,282
Fleming'n C. & C	W. Va.	100	25	23	25	23	25	23	25	23	25	23	25	21¾	
National Lead		100													
" " pf.		100									83¾	83¼			50
National Salt		100	42	40	40½	40	41	39	41	39	41	39	41	39	
" " pf.		100	66½	64⅜	65⅓	64⅜	67	65	66½	35	67	65	66½	65	
National Tube		100	46¼	45⅜	46⅛	46	46¼	46	46¼	46	46¼	46	46½		3,610
" " pf.			92¾	92½	92¾	92½	92¾	92½	92½		92½		92½		2,434
Republic I. & S.		100	11¼	11⅛	11⅝		13	12	12⅞	12¼	12⅝	12½	13		8,005
" " pf.		100					53¾	53¾	54	53½	55	54	55		1,920
Sloss-Shef		100											19		200
" " pf.		100													
Stan. Oil of N. J.		100	540	537	539	536	539	536	538	525	538	525	538	535	10
Tenn C., I. & R.R.		100	70⅞	69⅜	70		70	69½	69¾	69½	70¾	70	70½		9,625
Va. Coal & C.		100	5½	4½	5½	4½	5½	4⅜	5½	4½	5½	4 ⅛			

Total sales, 108,686.

PHILADELPHIA, PA.§

NAME OF COMPANY.	L'cation.	Par Val.	Aug. 23. H.	Aug. 23. L.	Aug. 24. H.	Aug. 24. L.	Aug. 25. H.	Aug. 25. L.	Aug. 27. H.	Aug. 27. L.	Aug. 28. H.	Aug. 28. L.	Aug. 29. H.	Aug. 29. L.	Sales
Am. Alkali		$50	2.00	1.88	1.88		2.00				1.88		1.75		1,120
Am. Cement		10	8.00	7.38	8.00		8.00		8.00		7.88		7.88		1,270
Bethlehem Iron	Pa.	50					57.00				57.00				65
Bethlehem Steel	"	50					14.50		14.75						450
Cambria Iron	"	50							45.13				45.38		398
Cambria Steel	"	50	16.38		16.50	16.13	16.25	16.00	16.13		16.00		16.50	16.25	2,742
Susq. I. & S.	"	10	2.50		2.50		2.50		2.50		2.50	2.38	2.50		1,050
United Gas I.	"	50	114½	114			113¾	113¼	113				112½		243

Total shares sold, 7,518. § Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia.

SAN FRANCISCO, CAL.

NAME OF COMPANY.	Location.	Par value.	Aug. 23.	Aug. 24.	Aug. 25.	Aug. 27.	Aug. 28.	Aug. 29.
Belcher	Nev.	$5.00	.12	.12	.12	.12	.13	.12
Best & Belcher	"	5.00	.17	.17	.17	.16	.15	.15
Caledonia	"	5.00	.52	.50	.50	.51	.46	.59
Challenge Con	"	5.00	.21	.22	.22	.17	.18	
Chollar	"	5.00	.15	.16	.15	.14	.14	.14
Confidence	"	5.00	.75	.75	.75	.65	.65	.69
Con. California & Virginia	"	5.00	1.75	1.83	1.88	1.25	1.30	1.30
Crown Point	"	5.00	.13	.13	.13	.12	.12	.12
Gould & Curry	"	5.00	.15	.15	.15	.15	.16	.17
Hale & Norcross	"	5.00	.17	.17	.18	.16	.17	.17
Justice	"	2.00	.02	.02	.02	.02	.02	.02
Mexican	"	5.00	.26	.26	.26	.24	.24	.25
Occidental Con	"	5.00	.10	.10	.10	.12	.10	.09
Ophir	"	5.00	.53	.54	.53	.52	.49	.49
Potosi	"	5.00	.22	.22	.21	.21	.20	.20
Savage	"	2.50	.10	.10	.10	.10	.09	.09
Sierra Nevada	"	5.00	.36	.33	.36	.35	.35	.34
Standard Con	Cal.	10.00	4.10	3.25	4.25	4.25	4.10	3.90
Union Con	Nev.	2.50	.20	.20	.20	.20	.18	.17
Utah Con	"	1.00	.06	.06	.06	.06	.06	.04
Yellow Jacket	"	5.00	.26	.26	.26	.22	.21	.22

CALIFORNIA OIL STOCKS.*

Name of Company.	No. of shares.	Par Val.	Aug. 7. H.	Aug. 7. L.	Aug. 8. H.	Aug. 8. L.	Aug. 9. H.	Aug. 9. L.	Aug. 10. H.	Aug. 10. L.	Aug. 11. H.	Aug. 11. L.	Aug. 13. H.	Aug. 13. L.	Sales.
Blue Goose	5,000	$100	15.00		16.00	15.00	16.00	15.00	15.00		15.50				17
Buckhorn	16,000	10.00	3.90	3.75	3.90		4.00		4.00		4.00		4.10	4.00	
Home	100,000	1.00	4.70	4.60	4.70	4.60	4.75	4.60	4.75	4.65	4.70	4.60	4.70	4.60	155
Homestake	10,000					15.00									
San Joaquin	100,000	1.00	4.25		4.50	4.35	4.37	4.25	5.00	4.25	4.50	4.05	4.10		400
Yukon	100,000	2.50	.65	.60	.65	.60	.61	.59			.65	.55	.63	.57	800

* California and Producers Oil Exchanges. Total sales, 867 shares.

BOSTON, MASS.†

NAME OF COMPANY.	Par val.	No. of shares.	Aug. 23. H.	Aug. 23. L.	Aug. 24. H.	Aug. 24. L.	Aug. 25. H.	Aug. 25. L.	Aug. 27. H.	Aug. 27. L.	Aug. 28. H.	Aug. 28. L.	Aug. 29. H.	Aug. 29. L.	Sales
Adventure Cons.	$25	100,000	3.00												50
Aetna Cons.	5	100,000													
Allouez	25	80,000	1.38												100
Amal. Copper	100	750,000	89.00		89.00	88.75	88.00		88.00	87.50			88.13		159
Am. Z., L. & S.	25	60,000	9.00												15
Anaconda	25	1,200,000													
Arcadian, c	25	150,000			20.00				19.50	19.00					650
Atlantic, c	25	40,000									23.50				5
Baltic, c	25	100,000	21.50		20.00		21.00	20.50			20.00		20.00		470
Bingham, c. g.	10	190,000							10.50		10.75		10.88	10.75	820
Bonanza	10	100,000									.75		.75		500
Boston	10	100,000											2.50		65
Bos. & Mon. Tr. R	25	150,000	320	317	316		317	315	315	311	312	311	315		277
British Col.	5	200,000													
Butte & Bost., c.	10	200,000					63.00		62.00						150
Cal. & Hecla, c.	25	100,000	757		757				750		750	745			52
Centennial, c	25	90,000							16.50		17.00		16.38		75
Cent'l Eureka	25	200,000	23.75				23.75				23.75	23.50			125
Cochiti, g	25	60,050							8.00				7.75		60
Copper Range	10	110,000													
Dominion Coal	25	100,000	42.00		43.00	42.25			41.63	41.50	41.50		42.00	41.50	1,011
do, rights													110¾		
do, pref.	100	150,000													50
Elm River	100	20,000									3.75		3.50		225
Franklin, c	100	582,610	14.00										13.75	13.50	160
I. Royal Con., c.	25	100,000	29.00	28.88	29.13	29.00	29.13	29.00	28.75	28.50	28.75		29.25	29.00	1,075
Mass Con.	25	100,000			6.25		6.25				6.25		6.50	6.25	1,705
Mayflower	25	100,000											2.00		100
Merced	15	104,000									6.00	5.00			110
Michigan	25	100,000	3.25								3.25		3.25	3.00	575
Mohawk, c	25	800,000							17.75						258
Mont. C. & C.	25	200,000							6.63	6.50					150
N.E. Gas & Coke			14.50	14.00							13.75	13.50			262
Old Colony	25	100,000													
Old Dominion, c	25	150,000	18.50		18.50		18.50		18.50	18.00	18.00	17.50			482
Osceola, c.	25	93,000	68.00		67.50	67.00	67.75		67.50		67.25		67.00	66.50	410
Parrott, s c.	10	229,350	42.25	42.00	42.00	41.75			41.50	41.13	41.50	41.13	41.50	41.38	880
Pioneer	10	100,000													
Quincy, c.	25	100,000			140								140		44
Rhode Island	25	100,000			2.75						2.88	2.50			125
Santa Fe, g. c.	10	250,000									5.00	4.50			525
Tamarack, c.	25	60,000	209		216	207½	215	214	214	211	214	212			830
Tecumseh	25	80,000													
Tri Mountain	25	100,000			9.00										50
United States	25	250,000					9.50	9.25	9.63						500
Utah Cons., g. c.	5	300,000	31.25	31.00	30.50	30.13	30.50		30.50	30.00	30.50	30.00	30.75	30.50	1,585
Victor, g.	5	200,000													
Victoria	25	100,000	2.00		2.25				2.00						205
White Knob	100	50,000											13.00		20
Winona, c.	25	100,000									3.00				10
Wolverine, c.	25	60,000	41.50	41.00	41.25				41.00						295
Wyandotte	25	100,000											1.50	1.00	115

† Official quotations Boston Stock Exchange. Total sales, 14,090.

SALT LAKE CITY, UTAH.

Aug. 18.

STOCKS.	Shares.	Par val.	Bid.	Asked.	STOCKS.	Shares.	Par val.	Bid.	Asked.
Ajax	300,000	$10	$0.42	$0.47½	Horn Silver	400,000	$25	$1.10	
Alice	400,000	25	.37½		Joe Bowers	400,000	1	0.00¼	$0.00⅜
Bullion Beck & Ch.	100,000	10	3.70	3.95	Joe Bowers Ext	700,000	¼	.00¾	.01
Centennial Eureka	200,000	25	22.00		Little Pittsburg	400,000	5	.00½	.00⅝
Chloride Point	500,000	1	.02	.09	Lower Mammoth	150,000	1	.43	.43¾
Daisy	500,000	3	.00½	.02	Mammoth	400,000	5	2.13⅝	2.14½
Dalton	500,000	5	.02½	.03½	May Day	400,000	¾	.49	.49¾
Dalton & Lark	2,500,000	1	.03	.08	Mercur	200,000	25	5.65	5.74
Daly	150,000	20	1.15	1.55	Northern Light	400,000	5	.01¾	.01⅞
Daly-West	150,000	20	17.90	18.12½	Ontario	150,000	100	5.90	7.25
Dexter	300,000	5	.58	.64	Sacramento	1,000,000	5	.27½	.27⅞
Eagle	250,000	1			Silver King	150,000	20	49.00	
Eagle & Blue Bell	250,000	1	.63	.76	Star Consolidated	500,000	1	.25	.31
Four Aces	250,000	1	.01½	.03½	Sunbeam	250,000	1	.06	
Galena	100,000	10	.04⅝	.06½	Sunshine			.00½	
Geyser Marion	300,000	5	.00½	.03	Swansea	100,000	5	3.95	4.07½
Golden Eagle	400,000	1	.00¾	.01½	South Swansea	150,000	1	1.18¼	1.21
Grand Central	250,000	1	5.55	5.62	Utah	100,000	1	.50	.90
Homestake					Valeo	200,000	10	.07	.24

TORONTO, ONT.

NAME OF COMPANY.	Par val.	Aug. 18. B.	Aug. 18. A.	Aug. 20. B.	Aug. 20. A.	Aug. 21. B.	Aug. 21. A.	Aug. 22. B.	Aug. 22. A.	Aug. 23. B.	Aug. 23. A.	Aug. 24. B.	Aug. 24. A.	Sales.
Ontario:														
Golden Star	1			.07¾		.07¾				.07¾		.07	.07⅜	10,900
Ham Reef	1			.05		.05⅛				.05¾		.05¼	.06	37,900
Olive	1					.05	.11							
British Col.:														
Athabaska	1			.24	.28	.24	.27			.21	.26	.20	.26	
Big Three	1									.01¼	.02¼			
Cariboo M'k	1			.90	.95	.88	.91			.86	.90	.86	.90	2 000
Crow's N. C.	25			35.00	38.00	35.00	38.00					35.00	37.75	
Dardanelles	1			.02	.03	.02	.03			.01¼	.02½			
Deer Trail	1			.04½	.04½	.04	.04¼			.04½	.04¾	.04	.04¼	13,000
Eve Star	1			.07½	.08½	.08	.09			.08	.09	.08	.09	
Fairview	1			.02¼	.02⅜	.02¼	.03			.02¼	.02½	.02½	.02⅝	5,000
Iron Mask	1			.26	.32	.26	.32			.26	.32			
Jim Blaine	1			.07	.12	.06	.12			.05	.12	.07	.12	
Knob Hill	1			.55	.65	.56	.60			.56	.65	.56	.65	
Mont Cristo	1									.03½		.03¾		6,000
Mont & Lon	0.24													
North Star	1			.90	.98	.90	.95			.94	.98	.94	.97½	
Payne	1			.85	.95	.92½	.94							1,100
Princess M.	1			.02	.04	.02	.04			.01½	.03	.02	.03	
Rambler	1			.23	.24½	.23	.24			.22½	.23½	.22½	.23½	500
Republic	1			.72½	.75	.76	.77¼			.70	.75	.69½	.73	
Van Anda	1			.02	.02¾	.02	.02¾					.02		7,500
Virtue	1			.56	.63	.55	.64			.55	.62	.57	.64	
War Eagle	1			1.50	1.55	1.49	1.53			1.50	1.52½	1.50	1.53	
Waterloo	0.10			.02¼	.02½	.02	.02½			.02	.03	.02	.02½	1,700
White Bear	1			.01¼										2,400
Winnipeg	1			.65	.10					.07	.10	.08	.10	
Develop Co.:														
B.C.G. Field	1			.02½	.03	.02½	.03¼							
Can. G. F. S.	0.10			.07	.07¾	.07¾	.07¾			.07	.07½	.07	.07½	2,000

Total shares sold, 89,900.

SPOKANE, WASH.

NAME OF COMPANY.	Par val.	Week Aug. 24. B.	Week Aug. 24. A.	Week Aug. 24. Sales.	NAME OF COMPANY.	Par val.	Week Aug. 24. B.	Week Aug. 24. A.	Week Aug. 24. Sales
Crystal		.03	.05		Mountain Lion		.70	.76	
Deer Trail Con	$1	.04½	.04⅝	45,500	Princess Maud	0.10	.03⅜	.03¾	4,500
Evening Star	1	.07	.08½		Quilp	1	.19	.20	
Gold Ledge		.01	.02		Rambler Cariboo	0.25	.22	.25	1,000
Jim Blaine	1	.12	.12½		Reservation		.08	.09¼	
Lone Pine Surp. Con	1	.09⅜	.10	27,500	Sullivan		1.13¼	1.13⅝	12,000
Morning Glory	0.10	.03	.03⅝	62,000	Tom Thumb	1	.15	.21	2,000

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.‡

NAME OF COMPANY.	Par val.	Aug. 18. B.	Aug. 18. A.	Aug. 20. B.	Aug. 20. A.	Aug. 21. B.	Aug. 21. A.	Aug. 22. B.	Aug. 22. A.	Aug. 23. B.	Aug. 23. A.	Aug. 24. B.	Aug. 24. A.	Sales.
Acacia	$1	.44⅝	.45⅛	.44⅜	.45⅛	.44⅛	.44⅞	.44	.44¾	.44½	.44⅞	.44¼	.44⅝	37,514
Alamo	1	.12¾	.13	.12¼	.13	.12⅜	.13¼	.12¼	.13¼	.12¼	.13¼	.12¾	.13	
Am. Con	1	.09	.09⅛	.08⅞	.09	.08⅞	.09	.09	.09⅛	.08⅞	.09	.08½	.09	10,000
Anaconda	1	.47⅜	.48⅜	.48	.48¾	.47⅜	.48	.47	.47⅛	.47¼	.47¾		.48	15,100
Anchor	1	.03	.03¼		.03⅛		.03¼	.03		.03	.03⅛	.03	.03⅛	500
Anchoria L	1	.80	1.00	.80	1.00	.80	1.00	.80	1.00	.80	1.00	.80		
Antelope	1	.02⅜	.02⅝	.02¾	.03	.02¾	.03	.02¾	.03	.02⅝	.02⅞	.02⅝		5,000
Aola	1	.06¾	.06⅞	.06⅝	.07	.06⅝	.07	.06⅝	.07	.06¾	.06⅞	.06⅞	.07	19,000
Arcadian	1			.04¼		.04¼	.04¾	.04	.04⅞	.04¾	.05¼	.04¾		1,500
Arg'ntum J	1	.27¼	.28	.26½		.26		.26	.26½	.26	.26½	.26	.26⅝	10 500
Banner	1	.04	.04¼	.04¼	.04¼	.04½	.04¾	.04	.04⅜	.03⅞	.04⅛	.03⅞	.04	7,000
Battle Mt.C	1	.29¾	.29⅞	.29¼	.30	.29½	.29⅝	.29¼	.29⅞	.29⅝	.30	.29⅝	.29¾	16,000
Ben Hur	1	.07¾		.07½	.08	.07⅝	.08	.07⅝	.08	.07¾		.07⅝	.08⅛	6,000
Black Bell	1		.12		.12	.10¾	.12				.12		.12	
Blue Bell	1	.11½	.11¾	.11½	.11⅞	.11½	.11¾	.11½	.11⅝			.11½	.11¾	9,000
Bob Lee	1	.05⅞	.06	.05⅞	.06	.05¾	.06	.06¾	.06	.05¾	.05⅞	.05⅝	.05¾	19,000
Buckhorn	1	.07¼	.07⅜	.07	.07⅜			.07	.07½		.07¼	.07	.07⅛	15,000
Cadillac	1	.02½	.02¾	.02½	.02⅞	.02¾	.02½	.02½	.02⅝	.02½	.02⅝	.02⅜	.02⅝	8,000
Central C'n	1	.09¾	.09⅞	.09⅝	.09⅞	.09¾	.09¾	.09⅝	.09½	.09¾	.09¾	.09¾	.09¾	30,000
Champion	1	.04½	.04⅝	.04½	.05⅛	.05⅛	.05⅜	.05⅛	.05⅜	.05⅛	.05⅜	.08	.08⅜	14,000
Chicolo	1	.02¼	.03⅛	.02¼	.03¼	.02¼	.03	.02⅜	.03	.02¾		.02¼	.03½	9,000
C. K. & N	1	.02⅝	.02½	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾	.02¾	.02⅞	18,000
C. C.Col'bia	1	.08½	.09⅛	.09⅛	.09¼	.09⅛	.09¼	.09⅛	.09¾	.09½	.09¾	.09⅜	.09¼	128,500
C. C. G. Ext	1	.16⅜	.16⅞	.16	.16½	.16	.16¼	.16½	.16⅝	.16½	.16⅝	.16	.16½	32,000
C. C. & Man	1	.12½	.12⅜	.12½	.12⅝	.12¼	.12⅝	.12¼	.12¾	.12½	.12¾	.12	.12⅜	19,500
Copper Mt.	1	.04⅜	.04⅝	.04¼	.04⅝	.04⅛	.04⅝	.04⅜	.04⅝	.04⅜	.04⅝	.04⅜	.04⅝	8,000
Creede& CC	1	.14½	.15	.14	.15	.14	.15	.14½	.15	.14½	.14⅞	.14½	.14⅜	
C. C. Con	1	.13¼		.13	.13½	.13	.13¾	.13	.13¾	.13¼	.13⅝	.13¼	.13⅝	2,000
Dante	1	.12⅜	.13	.12¼	.12⅝	.12¼	.12⅝	.12⅜	.12⅝	.12⅜	.12⅝	.12¾	.12⅝	12,000
Des Moines	1	.07	.07⅛	.07	.07¼			.07	.07⅛	.06⅝	.07	.06⅝	.07⅛	10,000
Eclipse	1	.09	.09¼	.09	.09¼	.09	.09¼	.09	.09¼	.09		.08½	.09	13,000
Elkton Con	1	1.62	1.67	1.62	1.62¾	1.63	1.64	1.63¼	1.63½	1.63	1.64	1.65½	1.65¾	28,458
El Paso G	1	.44½	.44¾	.43⅝	.43⅞	.43	.44	.43⅞	.44	.43¾	.44	.44¾	.45¼	11,000
Enterprise	1	.20½	.20⅝	.20	.22	.20	.20¾	.20	.20¾	.20	.22½	.29		
F.Rawlings	1	.25		.25¼	.30	.25½	.28	.25⅜	.28	.25	.28	.25¼	.28	
Findley	1	.12¾	.13¼	.13	.13½	.13⅜	.13½	.13⅜	.13⅝	.13¼	.13¾	.13¼	.13¾	27,000
Garf. Conn.	1	.07¼	.08½	.07½	.07¾	.07	.08¾	.07	.08¼	.07	.08¾	.07	.08½	
Golden Fl	1		.28		.28		.28		.28		.28		.28	
Gold Hill	1	.04½	.04⅝	.04⅜	.04½	.04⅜	.04½	.04⅜	.04¾	.04⅜	.04⅞	.04⅝	.04⅜	37,000
Gold Sov'n	1	.10	.10⅜	.09¾	.10	.09¾	.09⅞	.09¾	.10	.09¾	.10	.09⅝	.09⅞	6,000
Hayden	1	.02	.02½	.02	.02½	.02	.02½	.02	.02½	.02	.02½	.02	.02⅝	
Ida May	1	.32	.32¼		.32¼	.30	.31⅜	.30	.31	.29½	.31	.29		2,000
Indep'ndce	1													
Ing. Con	½	.19¼	.20	.19¼	.20	.19¼	.19⅝	.19¼	.19½	.19¼	.19½	.19¼	.19½	10,000
Isabella	1	1.20		1.14½	1.15	1.15½	1.16¼	1.15	1.16	1.15¼	1.15¾	1.17½	1.18	94,350
Jack Pot	1	.50		.50	.56	.50		.50½		.50		.50		200
Josephine	1													
Key West	1	.04¼	.04¾	.04¼	.04¾	.04¼	.04¾	.04	.04¾	.04¼	.04⅝	.04¼	.04¾	9,000
Lexington	1	.16¾	.16⅞	.16¾	.16⅞	.16¾	.17	.17		.16¾	.17⅜	.18½	.17½	12,000
Magnet R.	1	.04¼	.04¾	.04¼	.04¾	.04¼	.04½	.04¼	.04½	.04	.04¾	.04	.04⅜	11,000
Margaret	1	.02¼	.03	.02¾	.03	.02¾	.03	.02¾	.02⅞	.02½	.02¾	.02½	.02⅝	5,000
Margery	1	.03½		.03¼	.04	.03½	.03¾		.04		.04	.03¾	.03¾	1,000
Matoa	1	.32½	.33		.31⅝		.31¾	.29	.30		.30		.29½	12,100
Midway	1	.05	.06⅛	.06	.06½	.05¾	.06	.05¾	.06⅛	.05⅝	.06	.05¾	.06	4,000
M. J. T	1	.04⅜	.03⅞	.03⅝	.03¾	.03⅝	.04	.03¾	.04	.03⅝	.04	.03⅝	.04	12,000
Mobile	1	.03¾	.03½	.03¼	.04	.03¾	.04		.04	.03⅝	.04	.03½	.04	
Moll.Dwyer	1	.07⅛	.07¼	.07⅛	.07⅜	.07⅛	.07⅝	.07¼	.07⅜	.07¼	.07⅜	.07⅛	.07¼	53,000
Mollie Gib	1	.30¾	.29	.31	.30¾	.27	.30	.27	.30	.26	.29	.25	.50	1,000
Monarch	1													
Montreal	1		.07¾	.07	.07⅜									
Moon-A'c'r	1	.52	.52½		.52¼				.50		.53		.50	2,600
Morning S	1	.04¼	.04¾	.04¼	.04¾	.04¼	.04⅝	.04⅜	.04½	.04¼	.04⅜	.04⅜	.04⅝	39,200
Mtn.Beauty		.09½	.10⅛	.09¾	.09⅞	.09¼	.09¾	.09⅛	.09⅝	.09⅜	.09¾	.09⅝	.09¾	
Mt. Rosa	1				.70		.70		.70		.70		.70	
National	1	.10⅜	.10⅝	.10¼	.10⅝	.10⅜	.10¾	.10⅜	.10¾	.11⅛	.10⅜	.11	.10⅝	48,000
Nellie V	1	.10⅜	.11	.10⅜		.10⅜		.10⅜		.11⅛	.10⅜	.11	.10⅝	3,000
New Haven	1	.09	.09⅛	.09¼	.09¼	.09¼	.09½	.09¼	.09½	.09¼	.09½	.09⅜	.09½	236,000
Olive B'nch	1	.05¾	.06⅜	.06¼	.06⅜	.06¼	.06⅜	.06⅛	.06½	.06	.06⅜	.06	.06¼	10,000
Oriole	1	.05⅜	.05⅝	.05½	.05¾	.05⅞	.06	.06	.06⅛	.05¾	.06		.05⅞	33,200
Orphan	1	.19¼	.20	.18	.20	.19½	.20¼	.19¼	.20	.19	.20¼	.19¼	.20⅛	3,000
Pelican	1		.03	.02⅞	.03	.02¾	.03	.02¾	.03	.02¾	.02⅞		.02⅞	5,500
Pharmicist	1	.13½	.13⅞	.13¼	.13¾		.14⅜	.14¾	.14⅞	.14⅞	.14¾		.14⅜	29,600
Pilgrim	1	.13	.13⅜	.13¼	.13½	.13¼	.13⅜	.13	.13⅜	.13	.13⅜	.13⅜	.13⅝	5,000
Pinnacle	1	.19¼	.20		.20	.19¾	.20	.19¾	.20	.19½	.20	.19¾	.20	8,000
Portland	1	3.31	3.50	3.30		3.30	3.35	3.30	3.31	3.30				1,600
Prince Alb.	1	.04½	.04⅝	.04¼	.04½	.04¼	.04¾	.04⅜	.04¾	.04⅜	.04½	.04¾	.04¾	12,000
Princess	1	.06½	.06¾	.06½	.06¾	.06	.06¼	.06	.06¼	.06	.06½	.05¾	.06	4,000
Progress	1	.06½	.06¾	.05¾	.06¾	.06¼	.06½	.06¼	.06½	.06¼	.06¾	.06½	.06¾	9,500
Pythias	1	.05½	.05	.05¾	.06	.05⅞	.06	.05¾	.06	.05¾	.06	.05¾	.06	4,000
Raven														
Republic	1	.05¼	.06⅛	.06⅛	.06⅜	.06⅛	.06¼	.06⅛	.06½	.06⅛	.06¼	.06	.06⅛	30,000
Rob't Burns	1	.06	.06⅛	.06¼	.06¼	.06¼	.06½	.06¼	.06½	.06¼	.06½	.06⅜	.06¾	90,000
Rose Maud	1	.09	.09⅛	.09	.09⅜	.09	.09¼	.08⅞	.09⅛	.09	.09⅛	.09	.09⅛	13,500
Rose Nicol	1	.13½	.13¾	.13¾	.13¾	.13⅜	.13¾	.13⅜	.13¾	.13¼	.13¾	.13⅜	.13⅝	16,000
Silver Gold	1	.02⅝	.02¾	.02¾	.02¾	.02¼	.02½	.02	.02¾	.02½	.02¾	.02¼	.02¾	27,000
Specimen	1													
Theresa	1	.07¼	.08	.07¼	.07⅝	.07¼	.07⅝			.07¼	.07⅝	.07½		4,000
Trachyte	1	.07⅛	.07¼	.07⅛	.07⅜	.07	.07¼	.06⅞	.07⅛	.06⅞	.07⅛	.06⅝	.07⅛	9,000
Uncle Sam	1	.04⅜		.04⅜	.04¾		.04⅝	.04⅜	.04¾	.04¼	.04¾	.04½	.04¾	4,000
Union	1		.40		.40	.35	.40	.35	.40	.35	.40	.34	.40	
Va. M	1	.11¾	.11⅞	.11⅝	.11⅞	.11¾	.11⅞	.11⅝	.11¾	.11⅝	.11⅝	.11	.11¼	12,000
Vindicator	1	1.35	1.41	1.43	1.44½	1.43	1.44½	1.43	1.45	1.40	1.45	1.40	1.42	11,700
Work	1	.27½	.28	.27¾	.28½	.27⅞	.28¼	.27⅝	.28½	.28	.29	.27⅞	.28¼	5,600
Zenobia	1		.15		.14½		.14		.14		.14		.14	

‡ Colorado Springs Mining Stock Exchange. Total sales, 1,492,217 shares.

MONTREAL, CANADA.*

NAME OF COMPANY.	Par val.	Week, Aug. 27. H.	Week, Aug. 27. L.	Sales.
Big Three	$1	.02¾	.01⅝	1,000
California	1	.09	.07	
Can. Gold Fields	0.10	.08	.06½	2,500
Decca	1			
Deer Trail Con	1	.05	.03½	24,000
Evening Star	1	.09	.06½	
Golden Star	1	.03½	.06¼	
Gold Hills Dev.	1	.03	.01½	
Knob Hill	1	.70	.55	
Monte Christo	1	.04	.03	5,000
Montreal G. F	$1	.03½	.03	
†Montreal-London	0.24	.18½	.15	5,300
Okenogan	1	.09½		3,500
Oregon	1			
Payne	1	.94	.80	500
Rambler-Cariboo	1	.25	.22	
Republic Con	1	.73	.65	500
Slocan-Sovereign	1	.20	.10	
Virtue	1	.67½	.53½	5,500
War Eagle	1	1.55	1.40	1,000

* Montreal Stock Exchange. Total sales, 48,800 shares.

MEXICO. Aug. 18.

NAME OF COMPANY.	No. of shares.	Last div'd.	Prices. Op'g.	Prices. Cl'g.
Durango:				
Barradon y Cab	2,400		$40	$30
Candelaria de Pan	1,200		20	20
Capuzaya Guan.	2,400		15	12
Restauradora	10,000		10	20
Guanajuato.				
Angustias	2,400	5.00	185	180
Cinco Senores y An.	2,000	15.00	315	305
Guadalupe Hacie'a.	10,000	2.00	205	200
Trinidad, aviadora	2,000		6	7
do. avinda.	400		10	10
Zona Minera de Poz	2,400		6	8
Hidalgo:				
Amistad y Concord.	9,600	1.47	19	20
Arevalo	720		200	200
Bartolome de Med.	2,000	2.00	65	70
Carmen	1,100	7.75	250	300
Luz Ca Maravillas	800		120	100
Pabellon	800	27.89	30	20
Hidalgo:				
Real del Monte	2,354	10.00	600	550
San Francisco Hc.	6,000	1.00	145	100
Soledad	960	5.00	270	270
Sorpresa	960	7.50	280	260
Union Hacienda	2,000	5.00	220	2 5
Mexico:				
Coronas	500		75	75
Esperanza y An	3,000	10.00	1,280	1,300
Michoacan:				
Luz de Borda ava.	4,000		18	12
S. Luis Potosi:				
Concep. y An	2,400		260	265
Zacatecas:				
Asturiana y An	2,500	10.00	120	100
Cabezon	2,400		15	10
C'delar de Pinos	2,500		265	280
Palma de Somb	2 400		50	40

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	Aug. 18. B.	Aug. 18. A.	Aug. 20. B.	Aug. 20. A.	Aug. 21. B.	Aug. 21. A.	Aug. 22. B.	Aug. 22. A.	Aug. 23. B.	Aug. 23. A.	Aug. 24. B.	Aug. 24. A.	Sales
Alamo	1	.12¾												1,000
Anaconda	1				.50	.47½						.47¼		100
Arg. J	5			.27		.26¼	.25½	.26¼	.27	.25½	.26½	.25		
Cadillac	1	.02½	.02⅝	.02½	.02⅝	.02⅜	.02⅝	.02⅜				.02½	.02⅝	3,000
Dictator	1	.02⅜	.02¾	.02⅝	.02¾	.02⅜	.02¾	.02⅜	.02⅝	.02⅜	.02⅝	.02½	.02¾	1,000
Findley	1					.13¼	.13½	.13¼	.13⅜	.13¼	.13⅜	.13⅜	.13⅝	8,000
Iron Clad	1	.04⅝	.05⅛	.05⅛		.05								
Isabella	1	1.15	1.20	1.10	1.15	1.18	1.20			1.14½	1.15½	1.16	1.20	5,600
Magnet R'k	1	.04½	.04¾	.04¼	.04⅜	.04¼	.04⅝	.04¼	.04⅝	.04¼	.04⅜			
New Haven	1	.09	.09⅛	.09¼		.09	.09¼	.09½	.09¾			.09		
New Zeal'd.	1		.65											
Old Gold	1	.01½	.01¾			.01¾	.02	.01½	.01⅝					
Puritan	1	.00⅝	.01¼	.008	.01	.00⅝	.01	.009	.01⅛	.00⅝	.01⅛	.01	.01⅛	78,500
Wire Gold	1			.008		.007½	.009			.008	.00⅝			
Work	1	.27½	.28		.28½				.29		.28½			7,000

‡ Official Quotations Denver Stock Exchange. Total sales, 104,300 shares.

PARIS. Aug. 9.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Opening.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	85.00	1,820.00	1,820.00
" " Firminy	"	" "	3,000,000	500	175.00	3 500.00	3,515.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	500.00	500.00
" " Huta-Bank	Russia	Iron & steel		500		4,400.00	4,400.00
" " la Marine	France	Steel mfrs	20,000,000	500	60.00	1,645.00	1,645.00
Ansin		Coal			220.00	6,520.00	6,500.00
Boleo	Lower Cal	Copper		500	176.00	2,620.00	2,620.00
Briansk	Russia	Coal & iron		500		821.00	830.00
Champ d'Or	S. Africa	Gold	3,375,000	25	3.75	40.00	41.00
Courrieres	France	Coal	600,000	300	90.00	2,900.00	2,901.00
Dombrowa	Russia	"		500	12.50	1,020.00	1,020.00
Donetz		Steel				880.00	880.00
Dynamite Centrale	France	Explosives		500	22.50	425.00	420.00
Escombrera-Bleyberg	Spain	Lead		500	35.00	1,220.00	1,225.00
Fraser River	Brit. Col'mb.	Gold	250,000	25		3.50	3.25
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	146.00	146.50
Laurium	Greece	Zinc & lead	16,800,000	500	30.00	580.00	575.00
Malfidano	Italy	Zinc	12,500,000	500	50.00	1,150.00	1,152.00
Metaux, Cie. Fran. de	France	Metal d'lers	25,000,000	500	30.00	472.00	472.00
Mokta-el-Hadid	Algeria	Iron	18,812,500	500	40.00	1,110.00	1,126.00
Napthe Baku	Russia	Petroleum				785.00	814.00
Napthe Nobel	"	"				607.50	610.50
" " parts	"	"				12,150.00	12,200.00
Nickel	N. Caled'nia	Nickel	10,000,000	250	10.00	509.00	505.00
Penarroya	Spain	Coal, etc		500	95.00	2,505.00	2,550.00
Rebecca	Colo'do,U.S.	Gold	5,000,000	25		2.50	2.5
Salines de l'Est	France	Salt		500	5.00	220.00	225.00
Salines du Midi	"	"		500	25.00	830.00	880.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	36.00	720.00	747.50

LONDON Aug. 17.

NAME OF COMPANY.	Country.	Author-ized capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
			£ s. d.	s.d.		£ s. d.	£ s. d.
*Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	13 9	16 3
*Alaska-Mexican, g	"	200,000	1 0 0	0 4.8	Aug., 1900	16 3	18 9
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	5 0 0	5 5 0
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	Apr., 1900	9 5 0	9 7 6
De Lamar, g., s	Idaho	400,000	1 0 0	0 6	May, 1900	2 6	3 0
*El Oro	Mexico	1,000,000	1 0 0	1 0	Aug., 1900	1 3 9	1 6 3
Golden Gate, g	California	80,000	1 0 0			1 0	2 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Jan., 1900	10 0	15 0
Hall Sm. & Mg., c., s	British Col	250,000	1 0 0	1 0	May, 1899	1 0	1 6
Le Roi, g	" "	1,000,000	5 0 0	5 0	Nov., 1899	6 6 3	6 8 9
Lillie, g	Colorado	250,000	1 0 0	2½	Apr., 1900	8 9	11 0
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 0	4 6
Mountain Copper	California	1,250,000	5 0 0	11 0	Apr., 1900	6 0 0	6 5 3
Newfoundland, c	Newfoundland	250,000	1 0 0			2 6	7 6
Palmarejo & Mexican, g	Mexico	700,000	1 0 0			1 3	1 3
Stratton's Independence	Colorado	1,100,000	1 0 0	2 0	June, 1900	2 13 6	2 16 3
Copiapo, c	Chile	200,000	2 0 0	4 0	July, 1900	4 2 6	4 7 0
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	1 13 9	1 16 0
St. John del Rey, g	Brazil	600,000	1 0 0	rts.	July, 1900	1 5 0	1 6 0
Utah Con.,g.(Highl'nd Boy)	Utah	300,000	1 0 0	rts.	Mar., 1898	6 10 0	7 0 9
Velvet, g	British Col'mbia	100,000	1 0 0			15 0	1 0 0
Ymir, g	"	200,000	1 0 0	1 0	Nov., 1899	1 12 6	1 15 6
British Am. Corp	"	1,500,000	1 0 0	2 0	Mar., 1900	14 3	14 6
Linares, l	Spain	45,000	3 0 0	15 0	" "	9 0 0	10 0 0
Mason & Barry, c., sul	Portugal	420,000	2 0 0	10 0	May, 1900	3 17 6	4 2 6
Rio Tinto, c	Spain	1,625,000	5 0 0	45 0	" "	58 2 6	58 7 3
" " pref	"	1,625,000	5 0 0	2 6	" "	6 2 6	6 5 6
Tharsis, c		1,250,000	2 0 0	15 0	Apr., 1900	8 12 6	8 17 6
Assoc. Gold Mines	W. Australia	500,000	1 0 0	1 6	Jan., 1900	3 3 9	3 6 3
Broken Hill Prop., s	N. S. Wales	384,000	8 0 0	4 6	Aug., 1900	2 7 6	2 8 3
*Great Boulder Prop	W. Australia	175,000	2 0 0	6	Apr., 1900	1 12 6	1 13 6
Hannan's Brownhill, g	"	140,000	1 0 0	7 6	May, 1900	8 8 9	8 11 3
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	July, 1900	9 18 9	10 1 6
Kalgurlie, g	"	120,000	1 0 0	rts.	Oct., 1899	5 17 6	6 6 2
*Lake View Consols, g	"	250,000	1 0 0	5 0	Aug., 1900	11 18 9	12 1 9
Mt. Lyell M. & R., l., c	Tasmania	900,000	8 0 0	5 0	July, 1900	7 12 6	7 17 0
*Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	Aug., 1900	5 0 0	5 2 3
Waihi, g	New Zealand	320,000	1 0 0	2 6	Sept., 1900	9 16 3	9 18 9
Champion Reef, g	Colar Fields	220,000	10 0	4 0	Sept., 1900	7 17 6	8 0 0
Mysore Gold, g	"	250,000	10 0	4 0	July, 1900	6 1 3	6 3 6
Nundyroog, g	"	242,000	1 0 0	2 0	" "	3 5 0	3 7 9
*Ooregum, g	"	145,000	1 0 0	3 6	Aug., 1900	3 16 3	3 18 9
" pref. g	"	120,000	1 0 0	3 6	" "	4 16 3	4 18 6
British S. Africa, chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	3 2 6	3 5 0
Cape Copper, c	"	600,000	1 0 0	5 0	July, 1900	6 5 0	6 7 6
" pref	"	150,000	2 0 0	5 0	" "	5 5 0	5 10 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug., 1899	5 10 0	5 15 0
Con. Deep Level, g	"	200,000	1 0 0	x all	June, 1898	1 2 6	1 7 6
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	15 10 0	16 0 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	£1	Sept., 1899	27 17 6	28 2 6
Ferreira, g	Transvaal	90,000	1 0 0	30 0	Aug., 1899	21 0 0	22 0 0
Geldenhuis Deep, g	"	350,000	1 0 0	8 0	" "	10 5 0	10 10 0
Geldenhuis Est., g	"	200,000	1 0 0	10 0	" "	6 12 6	6 17 6
Henry Nourse, g	"	125,000	1 0 0	10 0	Apr., 1900	8 15 0	9 0 0
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0 0	6 0	Nov., 1899	16 0 0	16 10 0
Johannesburg Con. Invet.	So. Africa	2,750,000	1 0 0	2 0	Aug., 1899	2 0 0	2 2 6
Jubilee, g	Transvaal	500,000	1 0 0	5 0	Sept., 1899	6 0 0	6 5 0
Langlaagte Estate, g	"	470,000	1 0 0	3 0	Aug., 1899	3 5 0	3 10 0
May Con., g	"	290,000	1 0 0	6 0	July, 1899	4 7 6	4 10 0
Meyer & Charlton, g	"	100,000	1 0 0	8 0	June, 1899	5 2 6	5 7 6
Namaqua, c	Cape Colony	200,000	2 0 0	12 0	Aug., 1899	4 17 6	5 0 0
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	" "	8 17 6	6 4 2
Rand Mines, g	So. Africa	490,000	1 0 0	15 0	" "	39 17 6	40 2 6
Robinson, g	Transvaal	2,750,000	5 0 0	8 0		9 2 6	9 7 6
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	1 0 0	1 2 6
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	6 8 9	6 11 3
Wolhuter, g	"	800,000	4 0 0	2 0	Feb., 1899	4 7 6	4 12 6

* Ex-dividend.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Author-ized Capital Stock.	Shares Issu'd No.	Par Val	Dividends. Paid, 1900.	Total to Date.	Latest. Date.	Amt.
1	Acacia, g.	Colo..	$1,500,000	1,500,000	$1	$15,000	$15,000	June. 1900	.01
2	Ætna Con., q.	Cal ..	500,000	100,000	5	30,000	225,000	April 1900	.15
3	Alabama Coal & Iron, pf	Ala...	2,500,000	25,000	100	131,250	131,250	Aug.. 1900	1.75
4	Alaska-Mexican, g.	Alask	1,000,000	180,000	5	54,000	483,031	July.. 1900	.10
5	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	225,000	4,445,000	July.. 1900	.37½
6	Alice, g. s.	Mont.	10,000,000	400,000	25	.....	1,075,000	April. 1898	.05
7	Alliance, g.	Colo..	500,000	450,000	1	.....	31,500	Dec.. 1899	.07
8	Amalgamated, c.	Mont.	75,000,000	750,000	100	4,500,000	6,000,000	July.. 1900	2.00
9	Amanda, g.	Colo..	1,000,000	1,000,000	1	10,000	10,000	June. 1900	.01
10	Amazon, g.	Colo..	600,000	600,000	1	102,000	121,882	May.. 1900	.10
11	American Coal	Md. ..	1,500,000	60,000	25	225,000	982,000	Sept.. 1900	1.00
12	American Gold, g. s. c. l.	Colo..	3,000,000	300,000	10	.....	446,000	Dec.. 1899	.04
13	Amer. Sm. & Ref., pref.	U. S..	32,500,000	325,000	100	1,832,650	2,401,425	July.. 1900	1.75
14	Am. Steel & Wire, pf.	U. S..	40,000,000	400,000	100	2,100,000	4,900,000	July.. 1900	1.75
15	Am. Steel & Wire, com.	U. S..	50,000,000	500,000	100	1,750,000	1,750,000	July.. 1900	1.75
16	Am. Zinc, Lead & Sm.	Mo...	2,500,000	60,000	25	60,000	180,000	Jan.. 1900	1.00
17	Anaconda Copper	Mont.	30,000,000	1,200,000	25	2,400,000	14,550,000	April. 1900	2.00
18	Anchoria-Leland, g.	Colo..	600,000	600,000	1	.....	198,000	April. 1899	.08
19	Anglo-Mexican, g.	Mex..	2,001,625	400,230	5	.....	1,825,048	Dec.. 1899	.24
20	Apollo Con., g.	Alask	1,000,000	100,000	10	70,000	210,000	Jan.. 1900	.07
21	Appie Ellen, g.	Colo.	600,000	600,000	1	.....	25,000	Aug.. 1898	.01
22	April Fool, g.	Nev..	500,000	500,000	1	.....	16,000	Oct.. 1899	.01
23	Argentum-Juniata, g.	Colo..	1,300,000	650,000	2	.....	156,000	Oct.. 1895	.03
24	Argonaut, g.	Cal ..	2,000,000	200,000	10	70,000	490,000	May.. 1900	.05
25	Arizona Copper	Ariz..	3,190,550	.....	....	576,429	1,464,848	Sept.. 1900	.84
26	Associated, g.	Colo..	1,250,000	1,250,000	1	.....	84,000	Feb.. 1899	.01
27	Atlantic, c.	Mich.	1,000,000	40,000	25	80,000	860,000	Feb.. 1900	2.00
28	Bald Butte, g. s.	Mont.	250,000	250,000	1	67,500	837,148	Aug.. 1900	.03
29	Bankok Cora Belle, s.	Colo..	600,000	600,000	1	.....	107,510	July.. 1898	.01
30	Big Seven, g.	Cal ..	100,000	100,000	1	.....	6,000	April 1898	.03
31	Big Six, g. s.	Colo..	500,000	500,000	1	.....	15,000	May.. 1898	.00½
32	Boston-Aurora, pref.	Mo...	800,000	32,000	25	37,120	66,160	May.. 1900	.50
33	Boston & California	Cal ..	600,000	600,000	1	.....	72,000	June. 1899	.06
34	Boston & Colo. Smelting	Colo..	750,000	15,000	50	33,750	303,750	July.. 1900	.75
35	Boston Duenweg, z.	Mo...	1,000,000	40,000	10	24,000	56,000	June.. 1900	.10
36	Boston Get There, z.	Mo...	250,000	22,500	10	9,000	20,250	April. 1900	.10
37	Boston-Little Circle, z.	Mo-K.	1,000,000	100,000	10	12,500	87,500	Mar.. 1900	.12½
38	Boston & Mont. Con.	Mont.	3,750,000	150,000	25	4,200,000	18,500,000	Aug.. 1900	10.00
39	Boston Providence, z., pf	Mo...	150,000	15,000	10	6,000	17,242	Aug.. 1900	.05
40	Boston, q.	Cal...	1,000,000	100,000	10	10,000	20,000	Jan.. 1900	.10
41	Boston Springfield, z.	Mo...	500,000	20,000	25	15,000	15,000	June. 1900	.25
42	Boston Sunflower, z.	Mo...	150,000	15,000	10	.....	4,500	Oct.. 1899	.30
43	Breece, i.	Colo..	5,000,000	200,000	25	20,000	90,000	Sept.. 1900	.05
44	Buffalo Hump, g.	Idaho	3,000,000	300,000	10	185,000	185,000	Aug.. 1900	.10
45	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	60,000	2,498,000	June. 1900	.10
46	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	168,000	969,000	Aug.. 1900	.07
47	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	3,000,000	69,850,000	June.. 1900	10.00
48	Cariboo-McKinney, g.	B. Col	1,250,000	1,250,000	1	50,000	440,587	July.. 1900	.01½
49	Centen l-Eureka, g.s.l.c.	Utah.	5,000,000	100,000	25	217,700	2,367,700	July.. 1900	1.00
50	Center Creek, l. z.	Mo...	1,000,000	100,000	10	10,000	10,000	Feb.. 1900	.10
51	Central Lead, l.	Mo...	1,000,000	10,000	100	40,000	182,000	Aug.. 1900	.50
52	Champion, g. s.	Cal...	340,000	34,000	10	.....	321,700	Nov.. 1899	.25
53	Charleston, p. r.	S. C..	1,000,000	10,000	100	.....	200,000	June. 1899	2.00
54	Cloverdale, z.	Mo...	1,000,000	100,000	10	50,000	50,000	July.. 1900	.20
55	Colonial, l.	Mo...	1,000,000	1,000,000	1	.....	10,000	Aug.. 1899	.01
56	Colorado Smelting	Mont.	1,000,000	100,000	10	.....	1,945,000	Jan.. 1899	1.00
57	Columbia, l.	Mo...	500,000	50,000	10	12,500	12,500	June. 1900	.05
58	Commodore, g.	Colo..	1,200,000	1,200,000	1	.....	432,000	Jan.. 1899	.04
59	Commonwealth, z., pref.	Mo ...	500,000	100,000	5	30,000	50,000	June. 1900	.05
60	Consolidated Gold Mines	Colo..	1,000,000	1 000,000	1	70,000	80,000	Aug.. 1900	.01
61	Consolidation Coal	Md...	10,250,000	102,500	100	205,000	5,921,650	Feb.. 1900	2.00
62	Con. Mercer Gold Mines.	Utah.	5,000,000	1,000,000	5	75,000	1,441,000	April. 1900	.12½
63	Cons. Zinc & Lead, pf.	Mo...	400,000	400,000	1	8,000	8,000	Jan.. 1900	.20
64	Cordell, z. l.	Mo...	300,000	60,000	5	24,000	27,000	Aug.. 1900	.05
65	Cripple Creek Con., g.	Colo..	2,000,000	2,000,000	1	160,000	160,000	Mar.. 1900	.08
66	Cresus, g.	Cal...	1,000,000	190,000	5	45,600	93,100	June. 1900	.06
67	Crowned King, g. s. l.	Ariz .	6,000,000	600,000	10	.....	242,760	May.. 1899	.02
68	Dalton & Lark, g. s. l.	Utah.	2,500,000	2,500,000	1	.....	87,500	Mar.. 1896	.00½
69	Daly, g.	Utah.	3,000,000	150,000	20	.....	2,925,000	Mar.. 1897	.25
70	Daly West, g.	Utah.	3,000,000	150,000	20	337,500	457,500	Aug.. 1900	.25
71	Deadwood-Terra, g.	S. D..	5,000,000	200,000	25	.....	1,350,000	May.. 1898	.15
72	Deer Trail Con., g.	Wash	3,000,000	3,000,000	1	.....	55,000	Dec.. 1899	.00½
73	De Lamar, g. s.	Idaho	2,000,000	400,000	5	48,000	2,394,000	May .. 1900	.12
74	Della S., g.	Colo .	1,000,000	1,000,000	1	.....	60,000	Jan .. 1897	.01
75	Denver & Cripple C'k, g.	Colo..	1,000,000	1,000,000	1	10,625	10,625	June. 1900	.01⅝
76	Desloge Con., l.	Mo..	1,000,000	100,000	10	20,000	70,000	May.. 1900	.20
77	Dixie, g.	Utah.	125,000	125,000	1	10,000	10,000	April. 1900	.02
78	Doe Run, l.	Mo...	500,000	5,000	100	20,000	110,000	Aug.. 1900	.50
79	Ducktown, c. i. sul. (ord).	Tenn.	374,000	7,480	50	.....	95,744	Dec.. 1899	9.60
80	Ducktown (founder).	Tenn.	1,000	200	5	.....	41,160	Dec.. 1899	102.00
81	Dutch, g.	Cal ..	1,500,000	130,000	10	.....	39,000	Feb.. 1898	.05
82	Eldorado, g.	Cal...	1,000,000	100,000	10	.....	10,000	July.. 1899	.10
83	Elkhorn, New, s. l.	Colo..	437,500	87,500	5	.....	1,325,000	June. 1898	.48
84	Elkton Con., g.	Colo..	3,000,000	2,500,000	1	158,750	873,961	June. 1900	.03
85	El Paso, g. s.	Colo..	900,000	900,000	1	.....	12,393	Jan.. 1898	.01
86	Empire State-Idaho.	Idaho	1,000,000	98,514	10	236,433	554,471	Aug.. 1900	.30
87	Enterprise, s. l.	Colo..	500,000	500,000	1	.....	900,000	Sept.. 1898	.05
88	Fanny Rawlings, g. s.	Colo..	1,000,000	1,000,000	1	.....	20,000	Aug.. 1899	.01
89	Favorite, g.	Colo..	1,200,000	1,200,000	1	48,000	48,000	April. 1900	.04
90	Federal Steel, pf.	U. S..	100000,000	532,610	100	4,127,727	5,725,587	July.. 1900	1.75
91	Federal Steel, com.	U. S..	100000,000	464,843	100	1,743,161	1,743,161	Mar.. 1900	2.50
92	Fern, g.	B.Col	200,000	200,000	1	.....	10,000	Jan .. 1898	.05
93	Ferris-Haggarty, c.g.s.	Wyo.	1,000,000	1,000,000	1	.....	5,000	Feb.. 1899	.00½
94	Florence, s.	Mont.	2,500,000	440,000	5	22,000	252,000	April. 1900	.05
95	Frisco Con., l. s.	Idaho	2,500,000	500,000	5	.....	920,000	Nov.. 1899	.25
96	Galena, s. l. g.	Utah.	1,000,000	100,000	10	.....	71,000	Sept.. 1897	.05
97	Garfield Con., g.	Colo..	1,200,000	1,200,000	1	.....	34,000	May.. 1899	.01
98	Geyser-Marion. g.	Utah.	1,500,000	300,000	5	.....	96,000	Sept.. 1898	.02
99	Gold Belt, g.	Colo..	1,250,000	1,250,000	1	112,500	112,500	Aug.. 1900	.09
100	Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1	160,000	520,000	Aug.. 1900	.02
101	Gold Deposit, g.	Colo..	500,000	500,000	1	10,000	10,000	Mar.. 1900	.02
102	Gold & Globe, g.	Colo .	750,000	750,000	1	.....	51,625	July.. 1898	.00½
103	Gold King, g.	Colo..	1,000,000	936,850	1	84,316	149,896	July.. 1900	.03
104	Gold Sovereign, g.	Colo..	3,000,000	3,000,000	1	.....	.....	.....	.....
105	Golden Cycle, g.	Colo..	1,000,000	200,000	5	80,000	338,500	Aug.. 1900	.05
106	Golden Eagle, g.	Colo..	500,000	500,000	1	5,000	25,000	June. 1900	.01
107	Golden Fleece, g. s.	Colo..	600,000	600,000	1	.....	569,480	Feb.. 1897	.01
108	Golden Reward, g.	S. D..	1,000,000	100,000	10	.....	155,000	Feb.. 1898	.15
109	Golden Star, g.	Ont..	1,200,000	1,200,000	1	.....	45,500	July.. 1899	.00½
110	Grafton, g.	Colo..	1,000,000	1,000,000	1	.....	10,000	Oct.. 1899	.01
111	Grand Central, g.	Utah.	250,000	250,000	1	.....	666,250	Sept.. 1899	.24
112	Grand Gulch	Ariz..	250,000	240,000	1	9,600	9,600	April. 1900	.01
113	Granite, g.	Colo..	1,000,000	1,000,000	1	30,000	30,000	June. 1900	.05
114	Grass Valley Expl	Cal...	100,000	30,000	2	37,500	67,500	May.. 1900	.25
115	Greater Gold Belt, g.	Colo..	5,000,000	3,800,000	1	76,000	76,000	June. 1900	.02
116	Gwin, g.	Cal .	1,000,000	100,000	10	10,000	96,500	July.. 1900	.25
117	Hall Mg. & Sm.	B. Col	1,250,000	250,000	5	.....	120,000	May.. 1899	.24
118	Hecla Con.	Mont	1,500,000	30,000	50	.....	2,190,000	Dec.. 1898	.50
119	Hidden Treasure, g.	Cal...	500,000	360,000	1	.....	3,600	July.. 1899	.01
120	Holy Terror, g.	S. D..	500,000	500,000	1	5,000	172,000	Jan.. 1900	.01
121	Home, g.	Colo..	50,000	50,000	1	100,000	100,000	July.. 1900	.50
122	Homestake, g.	S. D..	21,000,000	210,000	$100	$840,000	$8,983,750	Aug.. 1900	.50
123	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	20,000	5,270,000	June. 1900	.05
124	Idaho, g.	Idaho	1,000,000	1,000,000	1	8,188	8,188	April. 1900	.01
125	Idaho, s. l.	B.Col	500,000	500,000	1	.....	292,000	Jan.. 1899	.05¾
126	Independence Con.	Colo..	2,500,000	2,500,000	1	100,000	100,000	Aug.. 1900	.04
127	International, z.	Mo...	1,000,000	1,000,000	1	26,427	26,427	July.. 1900	.01
128	Iowa, g. s. l.	Colo..	1,666,667	1,666,667	1	39,334	136,834	June. 1900	.00¾
129	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	.....	507,500	April. 1898	.02
130	Iron Silver, s l.	Colo..	10,000,000	500,000	20	.....	2,500,000	April. 1899	.20
131	Isabella, g.	Colo..	2,250,000	2,250,000	1	135,000	675,000	June. 1900	.03
132	Jack Pot, g.	Colo..	1,250,000	1,250,000	1	.....	75,000	Dec.. 1899	.06
133	Jamison, g.	Cal ..	3,900,000	390,000	10	.....	50,700	April. 1899	.10
134	Keystone, g.	Colo..	1,500,000	1,500,000	1	.....	35,000	Mar.. 1894	.01½
135	Klondike Bonanza, Ltd.	Klond	750,000	52,750	5	.....	12,000	Aug .. 1899	.24
136	La Fortuna, g.	Ariz .	250,000	250,000	1	200,000	750,000	Aug.. 1900	.10
137	Lake City, g	Colo .	50,000	50,000	1	3,875	3,875	May .. 1900	.01
138	Lake Superior Iron.	Mich.	2,100,000	84,000	25	.....	2,132,000	Feb .. 1899	1.00
139	Last Chance, s. l.	B.Col	500,000	500,000	1	.....	45,000	Apr .. 1899	.05
140	Last Dollar, g.	Colo..	1,500,000	1,500,000	1	60,000	90,000	July.. 1900	.02
141	Le Roi, g.	B.Col	5,000,000	200,000	5	.....	1,305,000	Nov .. 1899	1.20
142	Lillie, g.	Colo..	1,250,000	250,000	5	45,117	349,300	April. 1900	.05
143	Little Tiger, g.	Cal...	500,000	500,000	1	15,000	47,500	Feb .. 1900	.01½
144	Madison, g.	Colo..	1,250,000	1,050,000	1	35,000	35,000	June. 1900	.03½
145	Magnolia.	Colo..	1,250,000	1,100,000	1	187,600	187,000	July.. 1900	.17
146	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	140,000	1,750,000	Aug.. 1900	.05
147	Marion Con., g.	Colo..	5,000,000	500,000	10	.....	300,000	May.. 1899	.01
148	Mary McKinney, g.	Colo..	1,000,000	1,000,000	1	120,000	150,000	July.. 1900	.03
149	Maryland Coal, pf.	Md...	1,885,005	18,850	100	37,700	584,319	June. 1900	2.00
150	Matoa, g.	Colo..	1,000,000	1,000,000	1	.....	25,000	Dec. . 1898	.02½
151	Midget, g.	Colo..	1,000,000	1,000,000	1	15,000	15,000	May.. 1900	.15
152	Missouri Zinc Fields, pf.	Mo...	100,000	16,000	25	16,573	31,885	April. 1900	.16
153	Modoc, g. s.	Colo..	500,000	500,000	1	40,000	185,000	Aug.. 1900	.01
154	Mollie Gibson, s. l.	Colo..	5,000,000	1,000,000	5	.....	4,080,000	Jan.. 1895	.05
155	Monarch, g.	Colo..	1,000,000	1,000,000	1	120,000	120,000	April. 1900	.12
156	Montana Coal & Coke.	Mont.	5,000 000	200 000	25	60,000	60,000	April. 1900	.30
157	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5	.....	453,700	April. 1899	.12
158	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	160,000	1,520,000	May.. 1900	1.00
159	Montreal, g.	Colo..	1,000,000	1,000,000	1	.....	7,500	Nov.. 1898	.00¾
160	Monument, g.	Colo..	300,000	300,000	1	.....	18,124	Nov.. 1899	.01
161	Moon-Anchor Con., g.	Colo..	1,750,000	600,000	1	.....	261,000	Nov.. 1898	.07½
162	Moose, g.	Colo..	600,000	600,000	1	.....	186,000	Feb.. 1896	.01
163	Morning Star Drift, g.	Cal...	240,000	2,400	100	.....	847,200	Nov.. 1899	10.00
164	Morse, g.	Colo..	1,250,000	1,250,000	1	.....	215,650	May.. 1899	.12
165	Mountain Copper.	Cal ..	6,250,000	250,000	25	660,000	1,833,750	April. 1900	2.64
166	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1	.....	75,000	Dec.. 1899	.04
167	Mt. Shasta, g.	Cal...	100,000	20,000	5	.....	6,000	May.. 1899	.30
168	Moulton, g.	M. nt.	2,000,000	400,000	5	.....	500,000	Oct.. 1899	.05
169	Napa Con., q.	Cal ..	700,000	100,000	7	50,000	1,090,000	July.. 1900	.10
170	National Lead, com.	U. S.	15,000,000	149,054	100	149,054	1,341,486	Mar.. 1900	1.00
171	National Lead, pf.	U. S.	15,000,000	149,040	100	782,460	10,318,460	Sept . 1900	1.75
172	New Central Coal.	Md...	1,000,000	50,000	20	20,000	490,000	April. 1900	.40
173	New Idria, q.	Cal...	500,000	100,000	5	60,000	230,000	July.. 1900	.20
174	N. J. & Mo., z.	Mo...	250,000	2,500	100	11,000	11,000	June.. 1900	2.00
175	New York, Zinc.	Mo...	700,000	28,000	25	.....	6,500	Oct.. 1899	.25
176	N.Y.& Hon Rosario, s.g.	C. A..	1,500,000	150,000	10	135,000	1,297,000	Aug.. 1900	.20
177	North Star Mines.	Cal ..	5,000,000	250,000	10	.....	50,000	Nov.. 1899	.20
178	Nugget, g.	Colo..	625,000	1,250 000	½	.....	35,000	Aug.. 1898	.00½
179	Okanogan, g.	Wash	62,500	1,250,000	5	.....	3,125	Oct.. 1899	.00¼
180	Old Colony Zinc & Sm.	Mo...	1,100,000	68,329	10	33,332	33,332	April. 1900	.25
181	Omega, g.	Colo..	1,500,000	1,212,550	1	18,188	18,188	June. 1900	.01½
182	Ontario, s. l.	Utah.	15,000,000	150,000	100	90,000	13,662.500	April. 1900	.30
183	Orphan Belle, g.	Colo..	1,000,000	1,000,000	1	.....	197,899	Dec.. 1899	.09
184	Original Empire, g.	Cal...	5,000,000	50,000	100	.....	530,000	Oct.. 1899	1.00
185	Osceola, c.	Mich.	2,500,000	93,000	25	279,000	3,359,500	June. 1900	3.00
186	Parrot, c.	Mont.	2,300,000	229,850	10	1,034,325	4,049,059	July.. 1900	1.50
187	Pennsylvania Coal.	Pa....	5,000,000	190,000	50	.....	4,050,000	May.. 1899	8.00
188	Pennsylvania Con, g.	Cal...	5,150,000	51,500	100	25,750	161,325	May.. 1900	.10
189	Pennsylvania Steel, pf.	Pa. ..	1,500,000	15,000	100	52,500	78,750	July.. 1900	1.75
190	Petro, g.	Utah.	1,000,000	200,000	5	.....	32,000	Oct.. 1899	.02½
191	Pharmacist Con., g.	Colo..	1,500,000	1,500,000	1	.....	84,000	Jan.. 1898	.01
192	Pioneer, g.	Cal...	1,000,000	100,000	10	.....	62,500	Mar.. 1899	.12½
193	Plumas Eureka, g.	Cal ..	1,406,250	140,625	10	84,375	2,797,544	April. 1900	.60
194	Portland, g.	Colo..	3,000,000	3,000,000	1	570,000	3,127,080	July.. 1900	.06
195	Princess, g.	Colo..	1,000,000	1,000,000	1	.....	45,000	May . 1896	.01
196	Queen Bess Propr., s. l.	B.Col	500,000	100,000	5	.....	25,000	July.. 1899	.12½
197	Quicksilver, pref.	Cal...	4,300,000	43,000	100	21,500	1,866,911	July.. 1900	.50
198	Quincy, c.	Mich.	2,500,000	100,000	25	900,000	11,970,000	Aug.. 1900	4.00
199	Rambler—Cariboo, s. l.	B.Col	1,250,000	1,250,000	1	33,750	105,000	Mar.. 1900	.01
200	Reco, s. l.	B.Col	1,000,000	1,000,000	1	.....	297,500	Jan.. 1898	.10
201	Republic Con., g.	Wash	3,500,000	3,500,000	1	105,000	382,500	Mar.. 1900	.01
202	Republic Iron & Steel, pf	U. S..	25,000,000	212,570	100	743,994	1,587,989	July.. 1900	1.75
203	Reward, g.	Cal ..	1,000,000	100,000	10	.....	20,000	Aug . 1899	.20
204	Russell-Irwin, z.	Mo...	250,000	25,000	10	.....	15,000	Oct... 1899	.10
205	Sacramento, g.	Utah.	5,000,000	1,000,000	5	.....	138,000	Oct.. 1899	.00½
206	St. Joseph, l.	Mo...	3,000,000	300,000	10	112,500	3,009,500	Sept.. 1900	.50
207	Santa Rita, g.	Colo..	1,000,000	1,000,000	1	4,000	4,000	July.. 1900	.02
208	Seventy-Six, g. s.	Colo..	1,000,000	200,000	5	.....	2,950	Mar.. 1898	.01
209	Santa Rosalia, g.s.	Cal...	100,000	100,000	1	.....	135,000	Sept.. 1899	.05
210	Silver King, g. s. l.	Utah.	300,000	150,000	20	600,000	3,050,000	Aug.. 1900	.50
211	Small Hopes, s.	Colo..	5,000 000	250,000	20	.....	3,325,000	Feb.. 1899	.10
212	Smuggler, s. l. z.	Colo..	1,000,000	1,000,000	1	300,000	1,575,000	Aug.. 1900	.03
213	South Eureka, g.	Cal ..	1,500,000	300,000	5	.....	12,000	May.. 1898	.04
214	South Swansea, s. l.	Utah.	150,000	150,000	1	.....	165,000	Oct... 1899	.05
215	Southern Boy, g.	Colo..	1,250,000	875,000	1	17,500	17,500	May . 1900	.02
216	Squaw Mountain, g.	Colo..	2,000,000	2,000,000	1	.....	10,000	Nov.. 1899	.00½
217	Standard Con., g. s.	Cal...	2,000,000	200,000	10	60,000	3,959,226	Aug.. 1900	.10
218	Standard, g.	Idaho	500,000	500,000	1	.....	1,745,000	April. 1899	.06
219	Stratton's Independ'ce.	Colo..	5,500,000	1,000,000	5	960,000	1,920,000	June. 1900	.48
220	Swansea, s. l.	Utah.	500,000	100,000	5	50,000	251,500	Aug.. 1900	.05
221	Tamarack, c.	Mich.	1,500,000	60,000	25	300,000	6,570,000	June. 1900	7.00
222	Tomboy, g.	Colo..	1,500,000	300,000	5	72,000	884,000	June. 1900	.24
223	Touraine, g.	Colo..	1,250,000	1,250,000	1	87,500	87,500	April. 1900	.07
224	Union, g.	Colo..	1,250,000	1,250,000	1	.....	82,744	June. 1896	.01
225	Union, z. l.	Kas..	500,000	500,000	1	5,000	5,000	June. 1900	.01
226	United, z. l., pref.	Mo...	6,000,000	240,000	25	19,226	21,892	July.. 1900	.50
227	United Verde, c.	Ariz..	3,000,000	300,000	10	1,425,000	2,287,500	Aug.. 1900	.75
228	Utah, g.	Utah.	1,000,000	100,000	10	.....	179,000	Jan.. 1899	.02
229	Victor, g.	Colo..	1,000,000	200,000	5	.....	1,155,000	Dec. . 1898	.50
230	Vindicator, Con., g.	Colo..	1,500,000	1,065,000	1	161,000	465,500	July.. 1900	.05
231	War Eagle Con., g. s. c.	B. C..	2,000,000	1,750,000	1	52,500	545,250	Feb.. 1900	.01½
232	What Cheer, z.	Mo...	225,000	22,500	10	9,000	11,250	May.. 1900	.20
233	Wolverine, c.	Mich.	1,500,000	60,000	25	120,000	390,000	April. 1900	2.00
234	Work, g.	Colo..	1,500,000	1,500,000	1	.....	.....	.....	.....
235	Yellow Aster, g.	Cal...	1,000,000	100,000	10	110,000	429,416	Aug.. 1900	.10
236	Ymir, g.	B.Col	1,000,000	125,000	5	.....	30,000	Nov.. 1899	.24
237	Zenobia, g.	Colo..	1,000,000	1,000,000	1	.....	10,000	Feb.. 1893	.01

G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. Q., Quicksilver. I., Iron. This table is corrected up to August 16th. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

	Cust. Meas.	Price.
Abrasives—		
Carb orundum, f.o.b. Niagara Falls, Powd., F. FF. FFF	lb.	$0.10
Minute No. 1	"	.15
No. 15	"	1.00
Corundum, N. C.	"	.07@.10
Chester, Mass.	"	04½@.05
Crushed Steel, f. o. b. Pittsburg	"	.05½
Emery, Turkish flour, in kegs	"	.03
Grains, in kegs	"	.04½@.05
Naxos flour, in kegs	"	.03
Grains, in kegs	"	.05
Ch ster flour, in kegs.	"	.03
Grains, in kegs	"	.04½@.05
Peekskill flour, in kegs	"	.01¾
Grains, in kegs.	"	.02½
Crude, ex-ship, N. Y.: Kuluk (Turkey)	lg. ton	22.00@24.00
Abbott (Turkey)	"	26.50@30 00
Naxos (Greek) h. gr.	"	32.00
Pumice Stone, Am. powd.	lb.	.01¾@.02
Italian, powdered	"	.01¼
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02¼@.03
Lump, per quality	"	.05@.14
Rouge, per quality	"	.10@.30
Steel Emery, f.o.b. Pittsburg	"	.07
Acids—Acetic, 30% pure	100 lbs.	3.50
30% ch. pure	"	6.00
80% pure	"	7.50
Benzoic, English	oz.	.12½
German	lb.	.46
Boracic, cryst.	"	.10¾@.11
Powdered	"	.11¼@.11½
Carbolic, crude, 60%	gal.	.27
Cryst. 37% drums	lb.	.23
Liquid, 95%	gal.	.45
Carbonic, liquid gas	lb.	.12½
Chromic, crude	"	.20
Chem. pure	"	.50
Hydrochloric, ch. pure.	"	.07
Hydrofluoric, 30%	"	.03
48%	"	.05
Best	"	.25
Nitric, chem. pure	"	.09
Sulphuric, chem. pure	"	.07
Sulphurous, liquid anhy.	"	.08
Tartaric, cryst.	"	.31½
Powder	"	.32
Alcohol—Grain	gal.	2.37
Refined wood, 95@97%	"	.75@.80
Purified	"	1.50
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Powdered	"	3.00
Chrome, com'l	"	2.75@3 00
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	100 lbs.	2.60
Sulphate, pure	"	1.50@1.75
Com'l	"	1.15@1.30
Ammonia—Aqua, 16°	lb.	.03
18°	"	.03¼
20°	"	.03¾
26°	"	.05½
Ammonium—		
Bromide, pure	"	.52@.53
Carbonate lump	"	.08¼@.08½
Powdered	"	.09¼@.09½
Muriate, gran.	"	.06½
Lump	"	.09¼
Nitrate, white, pure (99%)	"	.10½
Phosphate, com'l	"	.12
Chem. pure	"	.60
Antimony—Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%	"	.09½
Com'l white, 99%	"	.12
Com'l gray	"	.07
Sulphuret, com'l	"	.16
Arsenic—White	"	.04¾
Red	"	.07¼@.07¾
Asphaltum—		
Ventura, Cal.	sh. ton	32.00
Cuban	lb.	.01½@.03½
Egyptian, crude	"	.05½@.06
Trinidad, refined	lg. ton	30.00@35.00
San Valentino (Italian)	"	14.50
Seyssel (French) mastic.	sh.ton	21.00
Gilsonite, Utah, ordinary	lb.	.03
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	"	.02@.02¼
Chem. pure cryst	"	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.01
Barytes—Am. Cr., No. 1.	sh.ton	9.00
Crude, No. 2	"	8.00
Crude, No. 3	"	7.75
Am. Floated	"	14.50@17.50
German, gray	"	14.50
Snow white	"	17.50
Bauxite—Ga. mines: 1st grade	lg. ton.	5.50
Second grade	"	4.35
Ala., f.o.b., 1st grade	"	5.00
Second grade	"	4.15
Bismuth—Subnitrate	lb	1.75
Subcarbonate	"	1.95
Bitumen, "B"	"	.03½
"A"	"	.05
"A" and "B"	"	.04½
Bone Ash	"	03¾@.03½
Borax	lb.	$ .07¼@.07½
Bromine—Bulk	"	.45
Cadmium—Metallic	"	1.40
Sulphate	100 lbs.	2.00@2.50
Calcium—Acetate, gray	"	1.55
" brown	"	1.05
Carbide, ton lots, f. o. b. Niagara Falls, N.Y.	sh. ton	75.00
Carbonate, ppt.	lb.	.05
Chloride, com'l	100 lbs.	.90
Best	"	1.00
Sulphite	lb.	.05
Cement—		
Portland, Am., 400 lbs.	bbl.	1.50@2.00
Belgium	"	1.95@2.20
English	"	2.45@2.55
German	"	2.30@2.70
"Rosendale," 300 lbs.	"	.95
Sand cement, 400 lbs.	"	1.55@1.95
Slag cement, imported.	"	1.65
Ceresine—		
Orange and Yellow	lb.	.11½
White	"	.13½
Chalk—Lump, bulk	sh. ton	2.15
Ppt. per quality	lb.	.04@.07
Chlorine—Liquid	"	.30
Water	"	.15
Chrome Ore—		
(50% ch.) ex ship, N. Y.	lg. ton	22.00
Sand, f.o.b. Baltimore	"	33.00
Bricks, f.o.b., Pittsburg, M		175.00
Clay, China—Am. com., ex-dock, N. Y.	lg ton	8.00
Am. best, ex-dock, N. Y.	"	9.00
English, common	"	12 00
Best grade	"	17 00
Fire Clay, ord.	sh. ton	4.00
Best	"	5.75
Slip Clay	"	5.00
Coal Tar Pitch	gal.	.08
Cobalt—Carbonate	lb.	1.75
Nitrate	"	1.50
Oxide—Black	"	2.26@2.36
Gray	"	2.28@2.40
Smalt, blue ordinary	"	.25
Best	"	.30
Copperas	100 lbs.	72½
Copper—Carbonate	lb.	.18
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, com'l	"	.19
Cream of Tartar—Crys.	"	.22¼@.22¾
Powdered	"	.23¼
Cryolite	"	.06½
Explosives—		
Blasting powder, A. 25 lb. keg		2.50
Blasting powder, B	"	1.25
"Rackarock," A	lb.	.25
"Rackarock," B	"	.18
Judson R.R. powder	"	.10
Dynamite (20% nitro-glycerine)	"	.13
(30% nitro-glycerine)	"	.14
(40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	16½
(60% nitro-glycerine)	"	.18
(75% nitro-glycerine)	"	.21
Glycerine for nitro (32 2-10° Be.)	"	.13¾@.13¾
Feldspar—Ground	sh. ton	8.00@9.00
Fluorspar—In bulk.		
Am. lump, 1st grade	"	12.40
2d grade	"	11.90
Gravel & crushed, 1st g	"	11.40
2d grade	"	10.90
Ground, 1st grade	"	15.90
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump.	100 lbs.	.75
Powdered	"	.85
Refined lump	"	1.25
Graphite—Am. f. o. b. Providence, R.I. lump.	sh. ton	8.00
Pulverized	"	30.00
German, lump	lb.	.01¼
Pulverized	"	.01½@.02
Ceylon, common	"	.03¾
Pulverized	"	.06@.10
Italian, pulv.	"	.01¼
Gypsum—		
Ground	sh. ton	8.00@8.50
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground.		
American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Iron—Muriate	lb.	.05
Nitrate, com'l	"	.01½
True	"	.03½
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07
Com'l, broken	"	.06½
Brown	"	.05½
Nitrate, com'l	"	.06½
" gran	"	.8½
Lime—Com., ab. 250 lbs	bbl.	.60
Finishing	"	.70
Magnesite—Greece.		
Crude (95%)	lg. ton	7.00@7.50
Calcined	sh.ton	17.50
Bricks	M.	170.00
Am. Bricks, f o.b., Pittsburg	"	175.00
Magnesium—		
Carbonate, light, fine pd	lb.	.03¾
Blocks		06@.09
Chloride, com'l	"	.01¾
Fused	"	.20
Magnesium—		
Nitrate	lb.	$0.60
Sulphate	"	.01@.01¼
Manganese—Crude-pow'd 70@75% binoxide	"	.01¼@.01½
Crude, pow'd 75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.02¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%. Foreign	unit	.29
Domestic	"	.30
Marble—Flour	sh. ton	5.50@6.00
Mercury—Bichloride	lb.	.74
Mica—N. Y. gr'nd, coarse	"	.04@.04½
Fine	"	.05@.06
Sheets, N. C., 2x4 in	"	.30
3x3 in	"	.80
3x4 in	"	1.50
4x4 in	"	2.00
6x6 in	"	3.00
Scrap, f.o.b., Dillsboro, N. C.	sh. ton.	25.00
Mineral Wool—		
Slag, ordinary	sh. ton	20.00
Selected	"	25.00
Rock, ordinary	"	32.00
Selected	"	40.00
Monazite—92%	"	140.00
Nickel—Oxide, No. 1	lb.	1.00
No. 2	"	.60
Sulphate	"	.20@.21
Oils—Black, reduced 29 gr.: 25@30 cold test	gal.	.11¼@.11½
15. cold test	"	.11¾@.12¼
Zero	"	.15¼@.15¾
Summer	"	.10¾@.11¼
Cylinder, dark steam ref	"	.10¾@.15¾
Dark filtered	"	.13¾@.15¾
Light filtered	"	.15¾@.18¼
Extra cold test	"	.23¾@.27¼
Gasoline, 86°@90°	"	.16@.21
Naphtha, crude 68@72°	bbl.	9.55
"Stove"	gal.	.12
Linseed, domestic raw	"	.65@.67
Boiled	"	.69
Calcutta, raw	"	.76
Graphite, lubricating, Am. dry	lb.	.10
In oil	"	.12
Axle grease	"	.08½@.10
Wood grease	"	.05@.06
Ozokerite—Foreign	"	.12
Paints and Colors—		
Chrome green, common	"	.05
Extra	"	.12@.15
Best	"	.37
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack, com'l	lb.	.03
Refined	"	.07
Litharge, Am. powd.	"	.05½@.06
English flake	"	.06½
Glassmakers, Foreign	"	.06½
Metallic, brown	sh. ton	19.00
Red	"	16.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾
French, washed	"	.01¾@.02½
Orange mineral, Am.	"	.07¾@.08
Foreign, as to make	"	.08@.10½
Paris green, pure, bulk	"	.12
Red lead, American	"	.06½
Foreign	"	.08¼
Shellac, "D. C."	"	.28
Native	"	.15
Turpentine, spirits	gal.	.41½@ 42
Ultramarine, best	lb.	.25
Vermilion, Amer. lead,	"	.14@.15
Quicksilver, bulk	"	.64
English, imported	"	.80
English, domestic	"	.74
White lead, Am., dry	"	.05¾
English	"	.06½@.08¾
Whiting, common	100 lbs.	.40
Gilders	"	.54
Zinc white, Am., ex. dry	lb.	.04½@.04¾
American, red seal	"	.07¾@.07¾
Green seal	"	.07¾@.08
Foreign, red seal, dry	"	.06¼@.08¼
Green seal, dry	"	.06¾@.08½
Potash—Caustic, ord.	"	.04½@.05
Elect. (90%)	"	.06½
Potassium—		
Bicarbonate cryst.	"	.08¼
Powdered or gran.	"	.14
Bichromate, Am.	"	.08½
Scotch	"	.09
Carbonate, hydrated	"	.04¼
Calcined	"	.04¼
Chromate	"	.35
Cyanide (98@99%)	"	.29@.30
Iodide, bulk	"	2.30
Permanganate, pure cr.	"	.13
Prussiate, yellow	"	.18@.19
Red	"	.37
Silicate	"	.06
Sulphide, com'l	"	.10
Quartz—(See Silica).		
Rosin—		
Com. strained (280 lbs.)	bbl.	1.55
Best strained	"	3.05
Medium	"	1.95
Salt—		
N Y. com. fine	sh. ton	2.00
N. Y. agricultural	"	1.50
Saltpeter—Crude	100 lbs.	3.60
Refined	"	4.00
Silica—Best foreign	lg. ton	10 00@11.00
Ground quartz, ord.	sh. ton	6.00@8.00
Best		12.00@13.00
Lump quartz	"	2.50@4.00
Glass sand	"	2.75
Silver—	Cust. Meas.	Price.
Chloride	oz.	$0.65
Nitrate	"	.40
Oxide	"	.85@1.10
Slate—Ground, black	sh. ton	7.50@8.75
Ground, red and olive.	"	20.00
Sodium—Acetate, com'l.	lb.	.04¾
Bichromate	"	.06½
Chlorate, com'l	"	.09@.09½
Hyposulphite, Am.	100 lbs.	1.70@1.80
German	"	2.10@2.20
Nitrite, 96@98%	lb.	.08
Peroxide	"	.45
Phosphate	"	.02½
Prussiate	"	.14¼
Silicate, conc.	"	.05
com'l	"	.02¼
Sulphate, gran., puri'd.	"	.03
Sulphide	"	.01¾
Sulphite	"	.02½
Tungstate, com'l.	"	.35
Strontium—Nitrate	"	.07½@.08
Sulphur—Roll	100 lbs.	1.75
Flour	"	1.80
Flowers, sublimed	"	2.05
Talc—N. C., 1st grade	sh.ton	13.75
N. Y., Fibrous	"	8.00@9.00
French, best	100 lbs.	1.25
Italian, best	"	1.75
Tar—Regular	bbl.	2.20@2.25
Oil barrels	"	4.15@4.30
Tin—Bichloride	lb.	.09½@.10
Crystals	"	.24½
Muriate, 36°	"	.09
52°	"	.15
Oxide, white, ch. pure	"	.41
Uranium—Oxide	"	2.25@3.00
Zinc—Metallic, ch. pure	"	.07¼@.09½
Carbonate	"	.15
Chloride	"	.05
Dust	"	.07¾@.07¾
Sulphate	"	.02@.02¼

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5.71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	oz.	2.25
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Cadmium—Sticks	kg.	1.55
Sheets	"	2.83
Granulated	"	2 38
Powder	"	1.90
Calcium—Elect	grm.	4.28
Cerium—Fused	"	2.02
Nitrate (N. Y.)	lb.	17.00
Chromium—Fused, Elect.	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.20
Cobalt—(98@99%)	kg.	6.66@8.33
Pure	"	30.94
Didymium—Powd.	grm.	3 81
Fused, Elect.	"	5.47
Nitrate (N. Y.)	lb.	60.00
Erbium	grm.	3.09
Nitrate (N. Y.)	lb.	62.00
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.75
Indium	grm.	3.57
Iridium—Fused	"	1.07
Powder	"	.95
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	oz.	3.50
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Magnesium—Ingot	kg.	6.19
In wire or ribbon	"	9.99
Powdered	"	5.95@7.14
Sheet	"	9.04
Molybdenum—Fused	grm.	.15
Powder, 95%	kg.	2.62
Niobium	grm.	3.81
Osmium	"	.94
Palladium—Wire	"	.86
Sponge	"	62
Potassium—In balls	kg.	17.85
Rhodium	grm.	2.38
Rubidium—Pure	"	4.76
Ruthenium—Powder	"	2.38
Rutile—Crude	kg.	.43
Selenium—Com'l powder	"	26 28
Sublimed powder	"	35.70
Sticks	"	28.56
Silicium—Com'l	"	28.56
Chem. pure crystals	"	59.50
Amorphous	"	27.36
Sodium (N. Y.)	lb.	.65
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p. sticks.	kg.	107.00
Chem. pure powder	"	83.30
Thallium	"	26.18
Thorium—Nitrate 49@50% (N. Y.)	lb.	4.75
Titanium	kg.	47.60
Uranium	"	190.40
Nitrate (N. Y.)	oz.	.25
Wolfram—Fused, elect.	kg.	238.00
Powder, 95@98%	"	1.43
Chem. pure powder	"	6.43
Yttrium	grm.	3 33
Nitrate (N. Y.)	oz.	62.00
Zirconium—Com'l	kg.	119.00
Nitrate (N. Y.)	lb.	9.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to Aug. 27. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.